Regulatory Compliance Self-Assessment
HMC Grants Reclamation Project

FINAL REPORT

August 31, 2018

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Section 1 - Introduction

Homestake Mining Company of California (HMC) has prepared this Regulatory Compliance Self-Assessment Report of the Grants Reclamation Project (Site) for review by the United States Nuclear Regulatory Commission (NRC) pursuant to the Confirmatory Order Modifying License dated March 28, 2017 (CO). HMC is the Licensee for Materials License Number SUA-1471 (License), and the CO resulted from a Settlement Agreement between HMC and NRC that was negotiated during mediation associated with five apparent violations of NRC's requirements listed in an NRC letter to HMC dated October 4, 2016.

Condition 3 of the CO provides:

> *HMC will complete an assessment of all HMC activities to determine whether all activities are authorized and are being conducted in compliance with NRC requirements. The assessment will identify areas where clarity could be added to the license. The assessment will include a written report that identifies all areas assessed, the scope of the assessment, the method used to perform the assessment, the results of each assessment and any corrective actions deemed appropriate. This report will identify any proposed changes to the license and procedures. This assessment will include a review of the licensee's Safety Culture, to identify any actions that may be necessary to improve upon or enhance the Safety Culture.*

This report has been prepared to satisfy Condition 3 of the CO.

Background

The Grants Reclamation Project is owned and operated by HMC in Cibola County, New Mexico. HMC is a traditional hard rock mining company, which owned and operated the Site and one other uranium mining and milling facility during the Cold War era but has not otherwise operated NRC-regulated facilities. The Site is located approximately 5.5 miles north of the village of Milan, which is a suburb of the town of Grants, in west-central New Mexico. Two former uranium mills, which processed ore to support the cold-war uranium industry, operated at the Site from 1958 to 1990. Operations were originally conducted by two distinct partnerships, the Homestake-Sapin Partners and the Homestake-New Mexico Partnership. The Homestake-New Mexico Partnership dissolved in 1961, and the property was ultimately acquired by the Homestake-Sapin Partners. The name of the partnership was changed in 1968 to United Nuclear-Homestake Partners. In 1981, Homestake Mining Company purchased United Nuclear Corporation's interest, and the name changed to Homestake Mining Company - Grants. On December 4, 2001, HMC merged with Barrick Gold Corporation, and is a wholly owned subsidiary of the Barrick Gold Corporation, which before its acquisition of HMC, had no experience with NRC-regulated facilities.

Tailings generated from milling operations at the Site were placed in two piles, a large tailings pile (LTP) and a small tailings pile (STP). The LTP covers an area of about 200 acres, is approximately 85 - 100 feet high, and contains an estimated 21 million tons of mill tailings. The STP covers an area of about 40 acres, is 20 - 25 feet high, and contains approximately 1.2 million tons of mill tailings. The mills were decommissioned and demolished from 1993 to 1995 under NRC Source Materials License No. SUA- 1471. Seepage from the tailings piles has since resulted in contamination of the underlying groundwater aquifers with radiological and non-radiological contaminants.

The primary activity currently at the Site is the remediation of groundwater adversely affected by previous milling activities as authorized by the groundwater Corrective Action Program (CAP) that dates from 1989. The current remediation system consists of a groundwater collection and injection system, a reverse osmosis (RO) water treatment facility, a zeolite water treatment system, two lined collection ponds, three lined evaporation ponds, a groundwater collection system for areas outside the facility's licensed boundary, and associated equipment and structures.

The primary contaminants and constituents of concern present in the groundwater at the Site are uranium, selenium, radium-226, radium-228, thorium-230, chromium, molybdenum, vanadium, sulfate, chloride, nitrate, and total dissolved solids (TDS). Radium-226 is the primary contaminant of concern present in the soil.

The major land use in the immediate area of the Site consists of residential development and cattle ranching. There are five residential subdivisions located south and southwest of the Site: Felice Acres, Broadview Acres, Murray Acres, Pleasant Valley Estates, and Valle Verde. Land near the Site is also used for agricultural and livestock purposes. Much of the land immediately surrounding the Site to the north, east and west has been acquired over the years by HMC. This property has not been put into use except for installation of some infiltration trenches and wells as a part of the groundwater restoration program. Future land use is expected to be consistent with current use.

The Site is one of four uranium mill sites in the U.S. subject to regulation both by the NRC under the *Uranium Mill Tailings Radiation Control Act* (UMTRCA) and by U.S. Environmental Protection Agency (EPA) under the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA). The Site is also subject to requirements under a discharge permit issued by the New Mexico Environment Department (NMED).

CERCLA authorizes EPA to list qualified sites on the National Priorities List (NPL). Since 1983, EPA has followed a general deferral policy for decommissioning sites that NRC regulates. The Site was listed on the NPL in 1983. According to EPA's deferral policy since 1983, EPA generally defers listing on the NPL sites that are subject to NRC's licensing authority "on the grounds that NRC has full authority to require a cleanup of releases from such facilities." However, this general policy does not apply to sites located in states to which NRC has delegated oversight authority, called "agreement states." New Mexico was an agreement state at the time the Site was listed on the NPL in 1983. Then, on June 1, 1984, New Mexico relinquished its oversight authority back to the NRC. After the State relinquished its oversight authority, the Site remained on the NPL, putting it in the unusual position of being under NRC's direct oversight and listed on the NPL with no EPA deferral.

In December 1993, NRC and EPA entered into a memorandum of understanding (MOU) delineating each agency's responsibility for remediation activities at the Site. According to the MOU, NRC would take the "lead regulatory agency" role. EPA would monitor remedial and reclamation activities required by NRC under the Corrective Action Plan (CAP) and provide reviews and comments directly to the NRC. EPA would also assure that the remediation activities conducted under NRC's authority allowed attainment of applicable or relevant and appropriate requirements (ARARs) under CERCLA.

1.1 Purpose and Scope

As required by Condition 3 of the CO, HMC has assessed all Site activities to determine whether those activities are authorized and are being conducted in compliance with NRC requirements and other federal regulatory requirements. In addition, NRC has reviewed compliance with State regulatory requirements under NMED Groundwater Discharge Permit DP-200. That assessment was carried out along with, and with the same rigor, as the analysis of federal requirements. HMC has discussed the identified deficiencies with NMED and has also discussed the steps it has taken or proposes to take to address all deficiencies in permit compliance. HMC will keep NRC apprised of those efforts, as well as its efforts to coordinate obligations in the license and permit respectively during the DP-200 renewal process.

This self-assessment report describes the scope and extent of the activities assessed, the methods used to perform the assessment, the results of the assessment, and corrective actions deemed necessary to restore compliance and to prevent recurrence of non-compliance. The report also identifies proposed changes to the license and discharge permit (including implementation procedures), including changes that could add clarity and eliminate conflicting requirements. In addition, this self-assessment includes an assessment of HMC's Safety Culture to identify any actions necessary to improve implementation of core values and behaviors to better reflect HMC's commitment to ensuring the protection of people and the environment.

For this self-assessment, HMC used NRC Material License SUA-1471 as amended by Amendment 49 as the baseline NRC regulatory obligation at the start of the self-assessment, and 29 CFR 1910 (e-CFR data; current as of March 7, 2018) as the baseline OSHA standard. HMC used NMED Discharge Permit DP-200 as amended December 30, 2014 as the baseline State of New Mexico regulatory obligations.

1.2 Summary of Regulatory Authorities Assessed

The following list of regulatory obligations assessed is not all inclusive but is intended to illustrate the extent of the assessment for each regulating authority.

1.2.1 NRC regulations and Material License SUA-1471, Amendment 49, including all documents incorporated by reference. These included but were not limited to:

- 10 CFR Parts 19, 20, 21, 40, and 51
- 36 CFR 800
- 43 CFR 7
- NRC Regulatory Guide 8.22
- NRC Regulatory Guide 8.30
- NRC Regulatory Guide 8.31
- Staff Technical Position on Testing and Inspection (NRC, 1989)
- NUREG-1620
- Various HMC letters to the NRC, as cited in individual License Conditions
- NRC Confirmatory Order, EA-16-114, dated March 28, 2017
- Additionally, all documents available from ADAMS for License No. SUA-1471 from 2013 to present were reviewed for ongoing license commitments not otherwise captured in a specific license condition.

1.2.2 NMED/OSE regulations and NM Discharge Permit DP-200, as amended December 30, 2014, including portions as applicable of:

- New Mexico Water Quality Act, NMSA 1978, Sections 74-6-1 through 74-6-17
- New Mexico Water Quality Control Commission Regulations, 20.6.2 NMAC
- New Mexico Office of the State Engineer, 19.25.12 NMAC

1.2.3 Occupational Safety and Health Administration (OSHA)

- OSHA has entered into an operational status agreement with the State of New Mexico as codified in 29 CFR 1952.20. Accordingly, the New Mexico Occupational Health and Safety Bureau (OSHB) has adopted all federal OSHA standards that relate to private sector employer operations. Therefore, the state and federal standards are identical to the Occupational Safety and Health Standards of 29 CFR Parts 1904, 1910, and 1926 which were used as the basis for performance of the assessment.

1.2.4 EPA

- The CERCLA equivalency process and authority supporting HMC's proposal that EPA recognize cleanup efforts under NRC oversight to date as a National Contingency Plan (NCP) equivalent cleanup.

1.3 Technical Approach

The self-assessment team used a three-phased approach to complete the evaluation of all HMC activities for federal regulatory requirements and NMED DP-200.

1.3.1 Phase I – Development of the current licensing basis for the Site

- All obligations were entered into a Microsoft Excel spreadsheet named the Regulatory Compliance Matrix (RCM).
- The spreadsheet included all cited regulations, Conditions, guidance documents, regulator and licensee correspondence, or other obligations incorporated by reference in the License.
- NRC guidance documents incorporated into the License by specific License Conditions were considered to be regulatory obligations. Where these obligated guidance documents themselves made reference to other guidance documents, these second-order references were not considered obligations, but rather were considered guidance only and were not evaluated for compliance gaps.
- For the purposes of incorporating the requirements of guidance documents included by reference into the RCM, only the obligated guidance document itself was listed in Phase I. For these documents incorporated by reference, not every provision was captured in the RCM, but it was the responsibility of the Phase II reviewer to evaluate implementation of all provisions through current HMC procedures and practices.

1.3.2 Phase II – The Gap Analysis. During the Phase II gap analysis, the reviewers performed a field verification process to confirm by inspection that HMC has implemented policies and/or procedures to satisfy the requirements of the licensing basis as captured in the RCM, and that these procedures are being followed in a manner to ensure ongoing compliance. To accomplish this verification, the reviewers:

- Determined if HMC has a policy or procedure that complies with the regulatory obligation.
- If so, confirmed that the plan and procedures are effectively addressing the regulatory obligation.
- If applicable, obtained copies of the latest HMC reports to demonstrate recording of required elements.
- If the reviewer discovered a gap in full implementation of the obligation, the column of the RCM denoting "Implemented?" was marked either "No" or "Partial." The reviewer provided sufficient comments to allow the reader to understand the extent of the compliance gap.
- Specific actions necessary to close each compliance gap were then assigned with a focus on not only eliminating the compliance gap, but also providing a means to ensure future compliance (e.g., establishing a new procedure).

1.3.3 Phase III – Root Cause Analysis and Corrective Action Identification

Root Cause Analysis

The results of the gap analysis were used to conduct a root cause analysis and identify proposed corrective actions. The approach for identifying contributing factors, root causes, and proposed corrective actions is described in Section 3.

Interviews

During the root cause analysis, members of the RCA team conducted interviews with technicians and staff at the Site, as well as Site management and members of the Barrick management team. Evidence from these interviews was captured and used to aid in identifying the root causes, contributing factors, and the corrective actions to address the identified root causes.

Review of Safety Culture

The NRC defines Nuclear Safety Culture (hereafter referred to as Safety Culture) as the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.

A fundamental component of the RCA was an assessment of the Safety Culture at the Site. This assessment of HMC's Safety Culture was based on the NRC's expectations regarding Safety Culture as contained in the NRC Safety Culture Policy Statement, 76 FR 34773, dated June 14, 2011 (SCPS). The SCPS sets forth the Commission's expectation that individuals and organizations establish and maintain a positive Safety Culture commensurate with the safety and security significance of their activities and the nature and complexity of their

organizations and functions. The SCPS applies to all licensees, certificate holders, permit holders, authorization holders, holders of quality assurance program approval, vendors and suppliers of safety-related components and applicants for a license, certificate, permit authorization, or quality assurance program approval, subject to NRC authority. The NRC obtains its legislative regulatory authority from the Atomic Energy Act of 1954 as amended and thus primarily focuses on nuclear safety issues.

The SCPS includes a list of nine traits[1] further defining a positive Safety Culture. These traits describe patterns of thinking, feeling, and behaving that emphasize safety, particularly in goal conflict situations, such as when safety goals conflict with production, schedule or cost goals.

It is the NRC's expectation that all individuals and organizations, performing or overseeing regulated activities involving nuclear materials, should take the necessary steps to promote a positive Safety Culture by fostering these traits as they apply to their organizational environments.

Corrective Action Identification

In addition to developing the individual corrective actions necessary to eliminate the compliance gaps identified in the Phase II gap analysis, the team developed a set of proposed corrective actions designed to specifically address the underlying root causes and to prevent recurrence of non-compliance. The team assessed each of these proposed corrective actions against the following criteria: Specific, Measurable, Achievable, Realistic, and Time-Bound (SMART), to ensure they were plainly established and clearly articulated measures necessary to reach and maintain regulatory compliance.

1.3.4 Third-Party Review

As required by Condition 4 of the CO, HMC has retained an independent third-party consultant to evaluate the draft self-assessment report. This third party, Foxfire Scientific, was provided a draft copy of this self-assessment report for review and comment. Foxfire's comments have either 1) been incorporated, or 2) where HMC disagreed with the comments, the basis for the disagreement has been provided. Section 6 contains a tabulation of comments and their disposition. In addition, Foxfire Scientific will generate a separate report documenting its review.

[1] Subsequent to publication of the SCPS, NRC identified an additional trait, "Decision Making," as being equally important as the nine SCPS traits in describing a healthy safety culture in nuclear organizations. (NUREG-2165)

Section 2 - Self-Assessment

This section describes the processes and results of the Phase I and II self-assessment activities conducted for each of the areas assessed at the Site.

2.1 NRC Confirmatory Order, EA-16-114

There were no regulatory compliance deficiencies found with HMC's implementation of the CO.

Appendix A of this report, entitled "Crosswalk of Confirmatory Order Condition Status, "provides an updated status for each CO Condition.

2.2 NRC Regulations and License SUA-1471

Appendix B of this report contains a compilation of the compliance deficiencies discovered for the NRC Regulations and License SUA-1471, including all documents incorporated by reference. This Appendix also identifies the consolidated deficiency groupings, which are discussed in Section 3 of this report, and provides the short-term corrective actions proposed to restore compliance.

In general, an entry of "No" in the implemented column signifies a requirement that is either not being met, or for which there is no documentation available to confirm that it was accomplished. An entry of "Partial" in the implemented column signifies an obligation that is not implemented in full, or for which there is no governing document to ensure it will be implemented correctly and fully in the future.

2.3 OSHA Requirements

Appendix C of this report contains a compilation of the compliance deficiencies discovered for applicable OSHA requirements. This Appendix also identifies the consolidated deficiency groupings, which are discussed in Section 3 of this report and provides the short-term corrective actions proposed to restore compliance.

2.4 EPA

A thorough gap analysis of HMC operations' compliance with EPA regulations, like that performed for NRC, NMED, and OSHA regulations, was not performed due to the dissimilar structure governing EPA's regulatory process. An overview of EPA's authority and regulatory process for the Site is provided below.

The *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) provides for the cleanup of sites at which there has been a release or threat of release of hazardous substances that may endanger public health or the environment. EPA has authority under both CERCLA and the *Uranium Mill Tailings Radiation Control Act* (UMTRCA) to regulate certain uranium mill tailings, including those at the Site. UMTRCA gives EPA authority to set health and environmental standards for contamination relating to uranium mill tailings, including groundwater protection standards.

CERCLA authorizes EPA to list qualified sites on the National Priorities List (NPL). The Site was listed on the NPL in 1983. According to EPA's deferral policy since 1983, EPA generally defers listing on the NPL sites that are subject to NRC's licensing authority "on the grounds that NRC has full authority to require a cleanup of releases from such facilities." However, this general policy does not apply to sites located in states to which NRC has delegated oversight authority, called "agreement states." New Mexico was an agreement state at the time the Site was listed on the NPL in 1983. Then, on June 1, 1984, New Mexico relinquished its oversight authority back to the NRC. After the State relinquished its oversight authority, the Site remained on the NPL, putting it in the unusual position of being under NRC's direct oversight and listed on the NPL with no EPA deferral.

CERCLA gives EPA discretion to decide when an NPL site should be delisted. The regulatory path to delisting a site from the NPL requires a responsible party to demonstrate that it has satisfied one or more of the delisting criteria. National Contingency Plan (NCP) regulations enacted under CERCLA provide that an NPL site may be delisted where EPA has determined "no further response is appropriate." In determining whether to delist a site, EPA considers three criteria, including whether:

(i) All appropriate response actions required have been implemented;

(ii) All appropriate Fund-financed response under CERCLA has been implemented, and no further response action by responsible parties is appropriate; or

(iii) The remedial investigation has shown that the release poses no significant threat to public health or the environment and, therefore, taking of remedial measures is not appropriate.

To address the jurisdictional complications and facilitate management of the Site, in December 1993, NRC and EPA entered into a memorandum of understanding (MOU) delineating each agency's responsibility in directing remediation activities at the Site. According to the MOU, NRC would assume the "lead regulatory agency" role. However, EPA would monitor remedial and reclamation activities required by NRC in the groundwater corrective action plan (CAP) and after its review provide comments directly to NRC. Under the MOU, part of EPA's role at the Site is to assure that the remediation activities conducted under NRC's authority meet the applicable or relevant and appropriate requirements (ARARs) that EPA identifies for the site under its CERCLA authority.

As with all CERCLA sites, EPA regulates the Site pursuant to the NCP, which provides guidance on the execution of response actions and establishes roles for government and private entities that may be involved.

In general, strict adherence to the NCP process is not necessary to establish NCP compliance. The NCP expressly provides that a private-party cleanup action **"will be considered 'consistent with the NCP' if the action, when evaluated as a whole, is in substantial compliance with" NCP requirements** "and results in a **"CERCLA-quality cleanup."** (40 C.F.R. § 300.700(c)(3)(i) (emphasis added)). EPA's involvement at the Site in the past five years has focused in part on HMC's efforts to demonstrate NCP-equivalency—that is, that the NRC cleanup process at the Site has thus far been functionally (or substantially) equivalent to the process required by the NCP under CERCLA.

To assess whether the NCP requirements have been met through the NRC investigation and analysis at the Site, EPA is evaluating whether the actions are functionally equivalent to CERCLA's Remedial Investigation and Feasibility Study (RI/FS) process. The NCP process under CERCLA is summarized as follows:

(i) An RI/FS is conducted to collect data necessary to adequately characterize the site for purposes of developing and evaluating effective remedial alternatives so that the information can be presented to a decision-maker for remedy selection;

(ii) A remedial plan is proposed, and public comment is gathered;

(iii) The Record of Decision (ROD) is finalized to document the remedial objectives and cleanup levels, demonstrate that the remedy selection process complied with CERCLA and the NCP, and serve as a substantive summary of the technical rationale and background information in the administrative record;

(iv) The Remedial Design/Remedial Action (RD/RA) is approved which involves the actual design of the remedy selected and implementation through construction; and

(v) Completion and site close-out occurs when EPA certifies that the cleanup has met the objectives.

Performing the equivalency analysis for the Site will, among other things, allow EPA to determine if the remedy selected is protective of human health and the environment, identify all requirements that would have to be met to satisfy the NCP, and create an NCP-compliant administrative record supporting the conclusion that the remedy is sufficiently protective.

At EPA's request, HMC prepared an equivalency package for the Site cleanup, which HMC submitted to EPA in 2013. In addition, in 2014, HMC submitted a draft Equivalency RI Report describing the nature and extent of soil contamination at the Site (revised draft provided to EPA in June 2016). The report relied on documents in the Site administrative record and data collection that had already been completed under the NRC process. As previously stated, EPA is to assure that the remediation activities conducted under NRC's authority attain ARARs under CERCLA. To support this process, HMC also developed a set of draft ARARs for the Site cleanup and submitted a draft table of ARARs to EPA for review in 2013. EPA is reviewing the ARARs as part of the equivalency process.

In its fourth Five-Year Review report (issued September 2016), EPA indicated that it is "reviewing assessment and response actions taken under NRC and NMED authority to determine if they are functionally equivalent to CERCLA cleanup process or if additional investigations or response actions are warranted." If EPA determines that the work performed to date achieves RI/FS equivalency, EPA will issue a ROD under its CERCLA authority for the existing remedy at the Site. EPA can then make the determination to delist the Site from the NPL.

HMC recognizes that certain actions taken under the confirmatory order will result in the need for updates to the draft Equivalency RI Report submitted to EPA, to incorporate data and evaluations that have been completed since the June 2016 revised draft. In addition to new data from routine environmental data collection that occurs at the Site, there are two investigations that will have an impact on the RI:

- EPA's re-investigation into alluvial background concentrations, along with studies, or sampling activities conducted by HMC that relate to the alluvial background concentrations; and
- Soil sampling and analysis at the Land Treatment Areas.

HMC believes that its Equivalency Package (subject to the updates discussed above) sufficiently demonstrates NCP compliance. However, the equivalency process by its nature relies on procedures and data collected outside of the formal CERCLA process. HMC does not yet have confirmation from EPA, and in the interim, continues to look for additional ways to strengthen the case for equivalency.

Section 3 - Root Cause Analysis

3.1 Scope of the Root Cause Analysis

The scope of the conditions and/or issues analyzed in the root cause analysis encompassed the regulatory compliance gaps discovered during conduct of the Phase II gap analysis.

3.2 Technical Approach

This Root Cause Analysis (RCA) was conducted in accordance with:

- Conditions 1 and 3 of the Confirmatory Order (CO) Modifying License issued to the Homestake Mining Company of California (HMC) dated March 28, 2017; and
- HMC's Root Cause Protocol dated July 26, 2017.

RCA Team

For this RCA, the core causal analysis team consisted of five members with significant experience in root cause analysis, the NRC regulatory process, environmental remediation/reclamation, and a broad understanding of the Site history and operations. This core team was assisted by Subject Matter Experts (SMEs) in the areas of NRC, NMED/OSE, and OSHA regulations. These SMEs were the topical leads for the Phase II gap analysis of their respective areas of expertise, and provided the relevant information and data needed to develop and understand the problem statements.

Approach

Traditional RCA approaches problem solving with the presumption that systems, behavior, and events are interrelated. Action or inaction in one area triggers an action or inaction in another, and another, and so on until the problem condition is recognized. By tracking these actions backward toward the origin, one can discover where the problem condition originated and how it produced the symptoms observed. With this cause/effect relationship in mind, there are usually three basic types of causes:

- Physical causes – actual material items that have failed in some manner; for example, a burst pipe.
- Human causes – people made mistakes or did not do something that should have been done. Human causes can lead to physical causes; for example, equipment failure due to improper operation.
- Organizational causes – a faulty system, process, or policy that people use to make decisions or perform work; for example, a procedure did not exist on the proper way to operate a piece of equipment.

Root cause analysis normally looks at all three types of causes. However, in our evaluation of the regulatory compliance deficiencies discovered in Phase II of this self-assessment, it was apparent that each of these deficiencies was most likely attributable to either a human or organizational cause, with none of the deficiencies having a physical cause. The observation that the source of the deficiencies would fall either into a human or organizational cause inherently limited the number of "why" questions necessary to identify contributing factors and root causes.

Evidence

To conduct the root cause analysis, the team relied upon the following sources:

- Detailed review of the gaps in compliance with license and/or regulatory requirements identified during the Phase II Gap Analysis as documented in the Regulatory Compliance Matrix (RCM);
- Detailed review of information and data gathered from the previously completed RCA surrounding the five apparent violations identified by the NRC in a letter dated October 4, 2016;
- Detailed review of the last 3 years of NRC inspection reports for the Site, HMC response to NOVs, and NRC review of the HMC NOV responses;
- Detailed review of HMC policies, procedures, and regulatory correspondence; and
- Interviews with a sampling of Site staff and management (described below).

Interviews

To confirm, dispel, or supplement the initial assignment of contributing factors, members of the RCA team conducted interviews with technicians at the Site, Site management, and members of the Barrick management team. Information from these interviews relevant to the conclusions of the root cause analysis is included in the list of supporting facts for each of the contributing factors and attributes associated with each deficiency grouping.

Consolidated Deficiency Groups

The team initiated the RCA process by developing Consolidated Deficiency Groups (the "deficiency groups") to summarize the deficiencies identified in the RCM into a manageable number of groups for root cause analysis. This was done because the number of compliance gaps identified in the Phase II Gap Analysis was far too large to conduct a full root cause analysis individually on each gap. This step also provided the answer to the first "why" question. For example:

Q: "Why did HMC not retain the appropriate records for the required time period as required by license condition 22?"

A: Because they did not have a formal record retention policy.

Asking the "why" question for each gap in the RCM (i.e., for each license, permit, or regulatory requirement that HMC either did not satisfy or only partially satisfied) resulted in the identification of the following five broadly inclusive deficiency groups:

1. Policy and procedural deficiencies
2. Record retention deficiencies
3. Personnel qualifications and training deficiencies
4. Reporting and posting deficiencies
5. Corrective action deficiencies

The proposed example (no formal record retention policy) falls into both the first (policy and procedural deficiencies) and second (record retention deficiencies) deficiency group. One could make the case that all of the items in the second deficiency group are representative of policy and procedural deficiencies, which would eliminate the need for the second group. However, the team agreed that the volume of record retention deficiencies was sufficiently high that it merited a stand-alone deficiency group.

In addition to placement of the identified gaps within categories, the team also reviewed the individual deficiencies to assure that the corrective actions identified for the categories did not miss particular corrective actions required for an individual deficiency.

Illustrative examples of the specific findings of non-compliance are provided for each deficiency group for each of the appropriate regulatory sources. The total compendium of non-compliances is contained in the RCM. A cross-reference of all the applicable non-compliance findings associated with a specific deficiency group is also included in the RCM.

Assignment of each compliance deficiency to one or more of the above groups is shown in Appendixes B and C of this report.

Challenge Team

The assignment of compliance deficiencies to the deficiency groups was discussed during formal challenge sessions conducted by the core RCA team. The team members reviewed the grouping of the compliance deficiencies that were identified in the Phase II gap analysis to ensure that the gaps in performance had been properly characterized and supported by sufficient evidence provided in the RCM. The focus of the team was to ensure that contributing factors were properly determined for use in identifying the root cause(s) for the performance and compliance gaps.

Problem Statements for Consolidated Deficiency Groups

Once the five deficiency groups were validated, they were used to define problem statements for further analysis of the contributing factors and root causes identified. The problem statements defined by the challenge team are:

1. Policy and procedural deficiencies

   This category covers situations where the policy/procedure either:
   - Did not exist;
   - Existed but was not properly interpreted or understood;
   - Existed but was not adequate to satisfy the underlying requirement; or
   - Existed but was not followed.

2. Record retention deficiencies

   This category addresses the inadequate maintenance of records to demonstrate compliance with the NRC license, the groundwater discharge permit, or applicable implementing procedures. Retention periods required for records and reports that have been identified by the various regulatory agencies are not documented or complied with in all cases.

3. Personnel qualifications and training deficiencies

   This category covers both the lack of personnel with the requisite qualifications to accomplish their assignments as well as the deficiencies in the site training programs needed to establish and maintain worker competence.

4. Reporting and posting deficiencies

   This category includes multiple instances of not submitting required reports or providing information insufficient to enable regulators to assess compliance. This category also includes inadequate communication with the regulators.

5. Corrective action deficiencies

   This category covers deficiencies that are self-identified or identified by regulatory agencies, but which have not been corrected timely and effectively.

Identification of Contributing Factors and Review of Safety Culture

A fundamental component of this RCA was an assessment of the Safety Culture at the Site. The team's assessment of HMC's Safety Culture was based on the NRC expectations regarding Safety Culture as described in the NRC Safety Culture Policy Statement (SCPS), 76 FR 34773, dated June 14, 2011. The SCPS defines Nuclear Safety Culture (hereafter referred to as Safety Culture) as the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.

The SCPS also includes a list of traits further defining a healthy Safety Culture. The SCPS notes that these traits describe patterns of thinking, feeling, and behaving that emphasize safety, particularly in goal conflict situations (e.g., safety considerations given precedence over concerns about production, schedule, and the cost of the effort).

For the purposes of this analysis, the team considered Safety Culture to encompass the full range of safety concerns at an NRC licensed site, namely, health and safety of workers (occupational safety), radiological safety, health and safety of the general public, and environmental impacts.

The next series of "why" questions were used to identify contributing factors for each deficiency group. For example:

Q: "Why did HMC have policy and procedural deficiencies?"

A: Because HMC management did not provide adequate resources and because the organization did not actively implement appropriate work processes.

Both components of the answer are addressed in NUREG-2165, *Safety Culture Common Language*, which NRC staff has provided as a first step in ensuring consistent development, implementation, and monitoring of Safety Culture as required by the SCPS. The NRC staff uses the agreed-upon common language of NUREG-2165 to implement elements of its programs that provide oversight of regulated activities and for classifying and grouping traits and attributes of a healthy Safety Culture.

As the RCA team continued to seek the root cause for the deficiency groups, it became apparent that the common theme was that all of the answers to the "why" questions could be framed in the common language of NUREG-2165. The team proceeded to assess how, if at all, the compliance gaps represented by the deficiency groups were caused or contributed to by weaknesses in each of the Safety Culture traits:

1. Leadership Safety Values and Actions
2. Problem Identification and Resolution
3. Personal Accountability
4. Work Process
5. Continuous Learning
6. Environment for Raising Concerns
7. Effective Safety Communications
8. Respectful Work Environment
9. Questioning Attitude
10. Decision Making

The team determined that weaknesses in one or more of the Safety Culture traits contributed to all of the deficiency groups. Therefore, the team used the attributes of a healthy Safety Culture as provided in NUREG-2165 to define these contributing factors, which were then analyzed to identify the root causes. As well as providing a systematic basis for identifying contributing factors and root causes, this approach also accomplished the review of the Safety Culture required by the CO.

Additionally, after collectively evaluating the deficiency groups for contributing factors and root causes, each compliance gap was individually reassessed to determine if there were any potential root or contributing causes unique to that individual compliance gap.

3.3 Detailed Analysis

Analysis of each deficiency group's problem statement is provided below. Specific representative examples of gaps are provided, where applicable, for each trait attribute considered to have influenced the contributing factors. The examples provided are only a representative sample of the gaps identified, a comprehensive listing of which can be found in: Appendix B, NRC regulatory or license requirement gaps; and Appendix C, OSHA gaps.

The information described in the examples that support each contributing factor is not necessarily representative of the current operation or management of the Site. This root cause analysis was not intended to be only a snapshot of any particular point in time, but rather to reflect a mix of both past and current practices to allow rational analysis of why or how the compliance gaps came to be. There has been notable improvement in Site operations in recent months, and there is clear evidence of management efforts to improve operations and to comply with applicable regulations. Some of the examples cited have been previously addressed by HMC during the course of the assessment, and others are in the process of being addressed. But these examples were captured in this report to assist in the understanding of the underlying causes for the non-compliances that resulted in the Confirmatory Order.

In cases where the listed example compliance deficiency has been either partially or wholly resolved during the course of the assessment, an updated status is provided. For those example compliance deficiencies still requiring resolution, no updated status is provided.

Despite this progress, there remains much to be done, particularly in the area of developing and instituting the policies and procedures necessary to ensure that this progress continues, and that there is a systematic approach to preventing reoccurrence of non-compliance. The proposed corrective actions are intended to enhance the process of improving operations and achieving the ultimate goal of successfully remediating the Site. We believe that completing these corrective actions will enable HMC to achieve that objective operating in a Safety Culture commensurate with the risks present at a remediation site.

3.3.1 Contributing factors for Policy and Procedure Deficiencies

This category covers situations where the policy/procedure either:

- Did not exist
- Existed but was not properly interpreted or understood
- Existed but was not adequate to satisfy the underlying requirement
- Existed but was not followed

3.3.1.1 Leadership

LA1 – Resources: Barrick and HMC management did not adequately ensure that personnel, equipment, procedures, and other resources were available and adequate to support the Safety Culture.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. Numerous examples found of inadequate policies and procedures. Many written procedures lack sufficient detail to address all relevant provisions of the governing regulations or obligation. Inadequacies in these implementing policies and procedures deny the staff the ability to successfully operate in compliance with regulatory requirements and obligations (e.g., LC35.1, SOP-17 requires updating).

  Status: The effort to rewrite policies and procedures was initiated by HMC in 2017 and is an ongoing project.

- OSHA and Work Safety. Deficiencies noted were the result of inadequate policies and procedures, inadequate site safety expertise, and lack of awareness of obtainable corporate resources.

  Status: HMC conducted a comprehensive evaluation of its OSHA policies and practices in April 2018 and is in the process of implementing corrective actions from that evaluation. HMC also hired a dedicated HSE/Compliance Officer in early 2018.

LA.3 Incentives, Sanctions and Rewards: Barrick and HMC management did not adequately ensure that incentives, sanctions, and rewards are aligned with safety policies and reinforce behaviors and outcomes that reflect all aspects of safety (radiological, industrial, and environmental) as the overriding priority.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations and OSHA and Work Safety. Several interviewees reported that historically at the Site, production was praised and rewarded over raising concerns. This practice was specifically noted by interviewees as no longer present under the current Site Closure Manager.

  Status: This deficiency is considered to have been resolved by the hiring of the current Site Closure Manager. It remains as an example here to ensure that management takes necessary actions to prevent reoccurrence.

LA4 – Strategic Commitment to Safety: Barrick and HMC management did not adequately ensure that plant priorities were aligned to reflect safety as the overriding priority.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. In 2017, two Management Assurance Reviews (MARs) were performed: Health and Safety, and Environment. There was no MAR performed for general radiological and/or nuclear safety. This indicates a possible blind spot of the Barrick corporate MAR process with respect to covering all aspects of safety (industrial, radiological, and nuclear) at an NRC-licensed facility.
- OSHA and Work Safety. The lack of an effective safety program in general, and specifically, of a safety orientation to specifically address the Site physical hazards provided evidence that safety was not the overriding priority.

LA5 – Change Management: Barrick and HMC management did not adequately use a systematic process for evaluating and implementing change so that safety remained the overriding priority.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. Individual changes to procedures are not controlled by a defined change control process. Individual procedures are not signed by the RSO or other management when changed; only the overall Manual of Standard Practices is signed periodically.
- OSHA and Work Safety. HMC contracted for and completed a third-party safety compliance site inspection which resulted in the production of a Site Health and Safety Plan (HASP); however, there was insufficient follow through on implementation of the plan. The HASP did not meet all safety compliance requirements, was not integrated with existing site policy guidance documents, and training was not completed on the HASP.

LA6 – Roles, Responsibilities and Authorities: Barrick and HMC management did not clearly define roles, responsibilities, and authorities to ensure safety.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. The RSO is not in the immediate reporting chain in the case of accidents or incidents even though he has primary responsibility for the Site Radiation Protection Program. PGD 5 indicates that the Crew Foreman and Closure Manager must be notified, not the RSO, and this practice potentially could leave the RSO out of the loop on issues requiring him to determine reportability.
- OSHA and Work Safety. The majority of safety procedures in place (PGDs and SOPs) do not clearly define roles, responsibilities, and authorities. The Grants Reclamation Project Site Health and Safety Plan (HASP), Section 2, has clearly defined responsibilities by role; however, the HASP has not been communicated or implemented on site.

LA7 – Constant Examination: Barrick and HMC management did not ensure that safety was constantly scrutinized through a variety of monitoring techniques, including assessments of the Safety Culture.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. The draft Quality Assurance Plan (QAP) dated December 2017 that was provided for review was incomplete. It states that a variety of internal management reviews, performance evaluations, and QA audits are performed to ensure that procedures are being implemented successfully. However, there are no metrics defining a successful program thereby allowing scrutiny against an established standard.
- OSHA and Work Safety. There was limited evidence of management scrutiny of the safety performance or Safety Culture on the Site. While corporate safety representatives did conduct an audit of significant risks at the Site in 2017, this review did not constitute a thorough review of Site safety.

3.3.1.2 Problem Identification and Resolution

PI3 – Resolution: The organization did not take effective corrective actions to address issues in a timely manner, commensurate with their safety significance.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. HMC received a non-cited violation (NCV) (NRC IR 2018-01) for "failure to initiate plans within one week to survey for leakage and repair the liner as needed to stop evaporation pond leakage in excess of the action leakage rate on several occasions in 2016-2017." This NCV was self-identified and has been closed; it is cited here as an example of historical inattention to timely corrective action.
- OSHA and Work Safety. HMC contracted for and completed a third-party safety compliance site inspection which resulted in the production of a Site Health and Safety Plan (HASP); however, there was insufficient follow through on implementation of the plan. The HASP did not meet all safety compliance requirements, was not integrated with existing Site policy guidance documents, nor was training completed on the HASP.

3.3.1.3 Personal (and Workgroup) Accountability

PA3 – Teamwork: Individuals and workgroups did not actively communicate and coordinate their activities within and across organizational boundaries to ensure safety is maintained.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. Unresolved Issue (URI) from NRC inspection 17-02 related to regulatory compliance with 10 CFR Part 20 requirements for internal occupational dose monitoring under certain conditions. Most of the corrective actions necessary were related to poor communications between the RSO and RSTs on actual scope of work versus planned scope. Multiple interviewees validated that HMC must continue to focus on effective communications and coordination between the workgroups.
- OSHA and Work Safety. Barrick and HMC management must improve utilization of available corporate resources in addressing the identified deficiencies in the safety policies and procedures or in addressing identified risks of the last industrial safety audit (see corrective action plan from September 2017 Safety and Health MAR).

3.3.1.4 Work Processes

WP1 – Work Management: Barrick and HMC management did not adequately implement a process of planning, controlling, and executing work activities such that safety is the overriding priority.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. Interviews validated that the Site does not have a systematic process in place for evaluating potential new activities establishing safety and regulatory compliance as the key consideration. Example provided is an apparent 2005 informal agreement between previous HMC staff and two local landowners to provide compliant water from the Site for irrigation purposes.

  Status: Once this arrangement was identified to the current Site management, the piping was removed, and inspections were performed to ensure no other unauthorized offsite connections existed. Further corrective actions (Section 4.3.1) have been proposed to inspect and evaluate all site operations on a recurring frequency.

- OSHA and Work Safety. The Regulatory Compliance Matrix (Appendix C) contains numerous specific examples of inadequate policies and procedures addressing requirements applicable to the Site contained in 29 CFR 1904, 1910 and 1926.

WP3 – Documentation: Barrick and HMC management did not adequately create and maintain complete, accurate, and up-to-date documentation.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. There is a requirement in SOPs 15, 24 and 25 to perform an analysis for uranium concentrations in the water (KPA). A written SOP for the KPA analyzer is used, but this procedure is not controlled as part of the Site Manual of Standard Practices.

- OSHA and Work Safety. Site management must improve procedural documentation to ensure that the Site is fully governed by comprehensive and high-quality programs, processes, and procedures. For example, the Site was unaware of the requirement to develop and post OSHA 300 Logs. A further manifestation of this condition is the development of a Site HASP that was not actively managed to integrate into the safety components of the existing Policy Guidance Documents.

  Status: Once aware of the requirement to develop and post the OSHA 300 Log, the Site acted swiftly and posted the log as required.

3.3.1.5 Continuous Learning

CL2 – Self-Assessment: Barrick and HMC management did not routinely conduct self-critical and objective assessments of its programs and practices.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. Multiple interviewees were not aware of any processes for conducting self-assessment of Site processes. Even though the technicians may not be involved in conducting those self-assessments (e.g., MARs), they should be aware of the findings to enable reinforcement of standards and expectations.
- OSHA and Work Safety. Although HMC had a Field Level Risk Assessment (FLRA) procedure and Site personnel and contractors were completing these safety self-assessment FLRAs, HMC needs to focus on the practice of using the FLRAs as a basis for improvements to the site operations, including the safety system.

3.3.1.6 Effective Safety Communication

CO3 – Free Flow of Information: Individuals did not adequately communicate openly and candidly, both up, down, and across the organization, and with oversight, audit, and regulatory organizations.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. No procedure or checklist to control the content or updating of Official Bulletin Boards. Consequently, many documents required to be posted (e.g., NRC Form 3, NRC License, NOVs) were not readily available for all employees per 10 CFR Part 19.11.
- OSHA and Work Safety. The Regulatory Compliance Matrix (Appendix C), as noted above, contains numerous specific examples of inadequate policies and procedures addressing the specific provisions or requirements applicable to the Site contained in 29 CFR 1904, 1910 and 1926. These inadequate policies and procedures are evidence of the lack of effective communication between different organizations to establish and maintain an effective focus on safety. A specific example was uncovered through interview: the Hazard Recognition Briefing Form used on site, which is provided in PGD-8, Policy Governing General Conduct and Expectations of Performance, had originally been passed down from corporate, and continued to be used on site for a considerable period after its use had been discontinued by the corporate organization.

3.3.1.7 Questioning Attitude

QA4 – Avoid Complacency. Individuals did not adequately recognize and plan for the possibility of mistakes, latent problems, or inherent risk, even while expecting successful outcomes.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. HMC lacks a systematic approach for the development and review of procedures. As a standard practice, a formal development, review, revision, and approval process should be instituted to ensure that possible deficiencies and mistakes are addressed.
- OSHA and Work Safety. Policies and procedures demonstrate a lack of adequate organizational identification and planning for the possibility of mistakes, latent problems, or inherent risk. For example, the Emergency Action Plan did not identify that medical care was over 15 minutes from the Site and as a result, there was no planning (provision of first aid equipment and training) to address this issue.

3.3.1.8 Environment for Raising Concerns (RC)

RC.1 Safety-Conscious Work Environment Policy: Barrick and HMC management did not effectively implement a policy that supports individuals' rights and responsibilities to raise safety concerns, and which does not tolerate harassment, intimidation, retaliation, or discrimination for doing so.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. Other than raising issues directly to the Site Closure Manager, multiple interviewees could not recall any alternate reporting channels (e.g., Barrick hotline, the right to contact the NRC directly), despite being trained on the existence of such contact routes yearly. Multiple interviewees also reported that they were not comfortable raising safety concerns to the previous Site Closure Manager for fear of retaliation.

  Status: This fear of retaliation is not present under the current Site Closure Manager.

3.3.2 Contributing factors for record retention deficiencies

This category addresses inadequate maintenance of records to demonstrate compliance with the NRC license or applicable implementing procedures. Retention periods required for records and reports that have been identified by the various regulatory agencies are not fully documented or complied with in all cases.

3.3.2.1 Work Processes

WP3 – Documentation: HMC did not adequately create and maintain complete, accurate, and up-to-date documentation.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. HMC does not have a comprehensive records retention policy and procedure for mandated regulatory records and reports. There is no policy noting that certain records are required to be retained until license termination, including, for example, 40.61(b), 20.2103(b), 20.2105(b), and 20.2107(a).
- OSHA and Work Safety. Although there was evidence of safety record retention in the form of FLRAs and safety incident reports, there was no evidence of a procedure to govern which records should be retained and for how long.

3.3.3 Contributing factors for Personnel qualifications and training deficiencies

This category covers both the lack of personnel with the requisite qualifications to accomplish their assignments as well as the deficiencies in the Site training programs needed to establish and maintain worker competence.

3.3.3.1 Leadership

LA1 – Resources: Barrick and HMC management did not adequately ensure that personnel, equipment, procedures, and other resources were available and adequate to support safety.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. HMC lacks a comprehensive process for identifying and providing the training required for qualification of each staff position. An overall Site training plan should be developed and maintained to ensure that personnel obtain and maintain the knowledge and proficiency to complete their assigned tasks safely.
- OSHA and Work Safety. Deficiencies noted were caused by a lack of suitable training on policies and procedures, and a lack of suitable site safety expertise to resolve this issue.

3.3.3.2 Personal Accountability

PA1 – Standards: Barrick and HMC management did not fully understand the importance of adherence to safety standards, including the need for all levels of the organization to exercise accountability for shortfalls in meeting standards.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. Multiple interviewees could not verbalize why it was equally important to comply with all regulations, particularly NRC regulations and NMED permit conditions. However, these same interviewees did have a good understanding of the impact of not meeting OSHA standards.
- OSHA and Work Safety. Procedural and interview evidence demonstrated that the Site did not have formal work safety orientation training or testing.

3.3.3.3 Continuous Learning

CL2 – Self-Assessment: Barrick and HMC management did not routinely conduct self-critical and objective assessments of its programs and practices.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. There is no indication in the 2017 Annual ALARA Audit that any other radiological-related self or objective assessments were performed during 2017.
- OSHA and Work Safety. The fact that there was no formal physical hazards safety training program, for employees or contractors, in terms of initial orientation, ongoing training or supervisor training, indicates that routine self-assessments by suitably qualified personnel were not conducted or were not effective.

CL4 – Training: Barrick and HMC management did not provide adequate training or ensure knowledge transfer to maintain a knowledgeable, technically competent workforce and to instill safety values.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. As a Condition of the CO, HMC agreed to conduct initial and annual training which addresses awareness and understanding of regulatory and license requirements; including but not necessarily limited to informing HMC employees of the jurisdiction of the NRC, the EPA, and NMED over the Site. This Condition was imposed to specifically address past performance issues observed by NRC inspectors with respect to employee knowledge and appreciation of their responsibilities as an NRC licensee.

  Status: Interviews indicated that this training has begun, but initial feedback from interviewees indicates that while it is raising awareness, the understanding aspect is not always being achieved.

- OSHA and Work Safety. Although there was interview evidence of physical hazard on-the-job-training for employees, and a weekly safety meeting that included a review of a safety procedure, Site management must implement a formal work safety training program to provide effective physical hazard training and ensuring knowledge transfer for employees and contractors.

3.3.3.4 Decision Making

DM3 – Accountability for Decisions: Single-point accountability is not consistently maintained for all safety decisions.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. It is not clear who is the single point of accountability for all radiological safety decisions. In cases of incidents, the RSO is not one of the initial contacts. The RSO is provided with a list of responsibilities, but according to the procedures and RPPM, the RSTs are responsible for most of the same issues.

- OSHA and Work Safety. Site management did not identify a suitably qualified single-point of accountability for physical hazard safety training. This contrasts with the evidence that a single point of accountability (the RSO) had been assigned for the radiological safety training.

3.3.4. Contributing factors for reporting and posting deficiencies

This category includes instances of inadequate or missing regulatory report submittals. This category also includes ineffective communication with the regulators.

3.3.4.1 Leadership

LA1 – Resources: Barrick and HMC management did not adequately ensure that personnel, equipment, procedures, and other resources were available and adequate to support the Safety Culture.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. Interviews indicated that full staffing of the Site staff has been only recently achieved. Prior to this, staffing was not sufficient to allow adequate opportunity for collaboration and full understanding of issues.
- OSHA and Work Safety. Deficiencies noted were the result of a lack of awareness of and utilization of suitable corporate injury reporting and hazard signage posting policies and procedures, and a lack of provision of suitable site safety expertise to resolve this issue.

LA6 – Roles, Responsibilities and Authorities: Barrick and HMC management did not clearly define roles, responsibilities, and authorities to ensure safety.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. There are no proceduralized controls governing communications between the licensee and the regulator. Therefore, formal communications with the NRC have been signed by multiple parties (both inside and outside the company) and there is no individual assigned responsibility to review these communications for commitments prior to submittal.
- OSHA and Work Safety. The safety procedures in place do not clearly define roles, responsibilities, and authorities for internal and external injury reporting or hazard signage posting.

3.3.4.2 Effective Safety Communication

CO3 – Free Flow of Information: Individuals did not effectively and adequately communicate openly and candidly, both up, down, and across the organization, and with oversight, audit, and regulatory organizations.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. Interviews and observations revealed that self-identification of deficiencies and open sharing this information with the regulators still meets initial resistance when a new potential noncompliance or violation is discovered. Previously this resistance led to the specific provision in CO Condition 12 that "*. . . HMC will clearly identify all values at SP2 that exceed GWPS or regulatory or license limits for the COCs identified in License Condition 35B . . .*"
- OSHA and Work Safety. Reporting and posting deficiencies are evidence of the lack of effective communication between organizations to establish and maintain an effective focus on safety.

3.3.5 Contributing factors for corrective action deficiencies

This category covers deficiencies that are self-identified or identified by regulatory agencies for which HMC must improve timeliness and effectiveness of its corrective actions.

3.3.5.1. Problem Identification and Resolution

PI3 – Resolution: Barrick and HMC management has not adequately addressed issues in a timely manner, commensurate with their safety significance.

Specific Examples:

- NRC Materials License SUA 1471 and Applicable Regulations. Corrective action plan developed in response to the 2017 Root Cause Analysis of the five apparent violations includes four items that were not fully completed by the estimated completion date as previously communicated to the NRC.

  Status: All elements have now been completed, with the exception of the internal audit of effectiveness of the completed actions, which is pending due to the need to allow some time for meaningful evaluation of compliance and will be submitted to NRC in a RCA CAP Completion Report.

- OSHA and Work Safety. A 2017 incident involved a truck getting stuck in the mud and being pulled out, leading to asset damage and increased exposure to risk. Incident was reported and investigated, corrective actions were identified with a schedule for completion. The identified corrective actions were not implemented within the schedule.

3.4 Summary of Causes

In the final step of the "why" process, the team considered what the root cause(s) were for the contributing factors. For example:

Q: "Why did Barrick and HMC management inadequately ensure that personnel, equipment, procedures, and other resources were available and sufficient to support safety?"

A: Because Barrick and HMC management did not adequately identify the need for additional resources.

Root Causes

After applying this approach to the series of contributing factors identified in the previous step of the process, the RCA team developed the following two root causes for the collection of regulatory compliance deficiencies:

3.4.1 Root Cause #1 (RC1)

Barrick and HMC management did not take necessary steps to establish and maintain a positive Safety Culture proportionate to the safety and security significance of Site operational activities.

3.4.2 Root Cause #2 (RC2)

Barrick and HMC management did not adequately oversee Site activities or provide resources adequate to ensure that all aspects of Site operations were conducted in full accordance with applicable requirements and standards.

The Team believes these two fundamental shortcomings are the root of all gaps in regulatory compliance observed at the Grants Reclamation Project.

Section 4 - Corrective Actions

Based upon the results of the Phase II gap analysis and the Phase III RCA, the team developed a set of proposed corrective actions designed to not only eliminate the compliance deficiencies noted, but to also specifically address the underlying root causes and to prevent recurrence of non-compliance.

4.1 Corrective Actions Completed or under NRC/NMED Review

The following corrective actions are in-progress licensing actions which have been submitted for approval.

In Progress Corrective Action	Dated	ADAMS Accession No.
License Amendment Request to Update the Groundwater Monitoring Plan of SUA-1471	November 20, 2017	ML18018A102
License Amendment Request to Add Zeolite Water Treatment System	December 11, 2017	ML17361A006
License Amendment Request to Clarify and Update Current License Conditions and Commitments	In 3rd party review prior to submission for NRC review/approval	-

4.2 Corrective Actions Needed to Restore Compliance

Individual corrective actions to close each specific compliance deficiency are contained in the RCM. See Appendixes B, C, and D for details.

4.3 Corrective Actions to Prevent Recurrence (CAPRs)

The root cause analysis team developed each of the following proposed corrective actions to satisfy the S.M.A.R.T. criteria:

- Specific
- Measurable
- Achievable
- Realistic
- Time-Bound

4.3.1 Proposed Corrective Actions to Implement Commitment to Safety and Regulatory Compliance

1. Point Person.

Barrick shall identify a qualified, accountable, and responsible individual to control sufficient resources to make the required changes at the Site. This individual will ensure that:

- all Site obligations are adequately tracked, and compliance maintained;
- personnel, equipment, procedures, and other resources are available and adequate to support establishing and maintaining a healthy Safety Culture;
- Site priorities are aligned to reflect that all aspects of safety (radiological, industrial, and environmental) are the overriding priority;
- a systematic process is used to evaluate and implement change so that safety remains the overriding priority;
- roles, responsibilities, and authorities are clearly defined to ensure that safety is the overriding priority; and
- Site priorities are regularly scrutinized through a variety of monitoring techniques, including assessments of the Site Safety Culture.

Timeframe – this corrective action will be completed within 30 days of receiving the results of NRC's audit of the Self-Assessment report.

2. Communication.

Barrick shall implement a plan of communication policies, procedures, and processes to ensure that:

- individuals and workgroups communicate and coordinate with safety in mind;
- specific procedures exist to foster a workplace environment that encourages employees to raise safety concerns and to feel free to do so without fear of retaliation;
- strategies exist to ensure frequent communication reinforcing the principle that the overriding objective is safety;
- personnel understand how safety relates to operational activities, workforce planning, budgets, and business plans; and
- senior leadership and Site employees interact face-to-face to create an open dialogue about safety performance with an emphasis on employee questions and feedback.

Timeframe – this corrective action has been initiated and is scheduled for full implementation within 120 days of receiving the results of NRC's audit of the Self-Assessment report.

3. Reinforce Corporate Commitment to Safety at the Site.

Barrick shall identify methods to reinforce to management and staff the corporate commitment to safety at the Site by:

- explaining how safety is the prime consideration in preparation of operational activities, workforce planning, budgets, and business plans;
- developing, implementing, and maintaining Site policies, procedures, and processes to address each of the traits of a healthy Safety Culture as provided for in the NRC's Safety Culture Policy Statement;
- developing, implementing, and maintaining a corrective-action program to identify, prioritize, assign, track, and resolve problems that are important to safety;
- developing, implementing, and maintaining a management-of-change procedure, which shall include measures to foster the individual traits of a healthy Safety Culture when assessing changes to Site organization, equipment, and processes;
- developing, implementing, and maintaining a field-presence initiative for Site leadership that promotes and measures oversight of field activities with the goal to drive and verify leaders' engagement with employees and to reinforce high standards;
- developing, implementing, and maintaining a Procedure Writers Guide to create a systematic approach to creating and revising Site procedures, including provisions for training and feedback from users to create the tools necessary to ensure predictable, repeatable, and successful work performance related to safety; and
- foster in leadership and staff Barrick's commitment to safety and behaviors that will demonstrate that commitment.

Timeframe – this corrective action has been initiated and is scheduled for full implementation within 120 days of receiving the results of NRC's audit of the Self-Assessment report.

4. Self-assessment Program.

Barrick shall develop, implement, and maintain an ongoing self-assessment program to:

- conduct periodic reviews ensuring policies and procedures are effectively implemented and fostering the mindset of continuous improvement, and
- inspect and evaluate all site operations on a recurring frequency to identify any unapproved activity or unauthorized use or configuration of site infrastructure, such as wells or piping.

Timeframe – this corrective action has been initiated and is scheduled for full implementation within 120 days of receiving the results of NRC's audit of the Self-Assessment report.

5. Training.

Barrick shall develop, implement, and maintain training procedures on the crucial role of regulatory compliance to ensure that all Site operations are completed with safety as the overriding priority. This training is intended to:

- foster effective communication to support teamwork and coordination between groups; and
- develop through training an awareness and understanding of the limits and restrictions inherent in the treatment and processing of licensed materials at the Site, and that all agreements or provisions involving site infrastructure or materials must be formal, documented, and fully evaluated for compliance with the NRC license prior to initiation, and
- foster a questioning attitude, emphasizing the responsibility of each person to continuously assess his or her duties, and procedures, processes and conditions at the job site, to identify inconsistencies and/or abnormalities.

Timeframe – this corrective action has been initiated and is scheduled for full implementation within 120 days of receiving the results of NRC's audit of the Self-Assessment report.

6. Staffing.

Barrick shall determine and establish the site staffing levels necessary for safe and effective implementation of key functions based on experience; training; certifications; knowledge-management needs; and timing of expected retirements, resignations, and reassignments.

Timeframe – this corrective action has been initiated and is scheduled for completion within 30 days of receiving the results of NRC's audit of the Self-Assessment report.

Section 5 - Proposed Changes to the Licensing Basis

This section provides a listing of all changes recommended to the License to align obligations and ensure continued compliance. This listing does not include those items addressed by the License Amendment Requests listed in Section 4.1 that have previously been submitted to the NRC for review and approval. Coordinating the submittal, review, and approval of these items into an integrated plan with input from NRC (as well as EPA), as well as from discussions with NMED during permit renewal, will make the most effective use of valuable staff resources.

While the team has listed these specific items to comply with the requirements of the CO, we believe that the best approach would be to rewrite License SUA-1471 using modern performance-based License Conditions. This will better define specific obligations and allow the licensee to update Site processes and programs using the Safety and Environmental Review Panel (SERP) process.

5.1 NRC License

As a result of this Self-Assessment, the following items summarize proposed revisions to NRC License SUA-1471. Most of these proposed changes are to add specific details to provide clarity and promote a common understanding by all readers of the actions necessary to demonstrate compliance.

- In Condition 15, the phrase "all effluent and environmental monitoring" should be revised to indicate the specific effluent and environmental monitoring data that is to be reported semi-annually, or to reference specific sections of specific documents.
- Condition 16 should be revised to provide clarity on identification of and addressing a "significant adverse environmental impact." Standards of significance differ between agencies and it is not clear in this License Condition which standard should be applied to measure significance.
- Condition 35B should be revised to indicate that a revised CAP will be submitted to the NRC no later than December 20, 2019, or as otherwise specified by the NRC. Also, once compliance monitoring wells designated for the various groundwater zones as proposed in the CAP are approved by the NRC, then Condition 35 should be revised to include those NRC-approved designated compliance wells for each zone.
- Condition 36B(1) should be revised to indicate new target dates by which erosion protection will be placed on the STP and on top of the LTP. These target dates may be established relative to other specific reclamation milestones (e.g., a fixed period following completion and approval for cessation for specific groundwater corrective actions), without being calendar date specific.
- Condition 36B(2) should be revised to accurately reflect the projected date by which it is expected that groundwater corrective actions will meet performance standards specified in the revised CAP to be submitted to the NRC by December 20, 2019.
- Condition 42 should be revised to indicate that the annual report to be submitted by March 31 annually for the previous calendar year, shall include these components:
  - The annual embankment status report (per Condition 12)
  - ALARA audit report
  - Land use survey report
  - All effluent and environmental monitoring data (Condition 15)
  - Corrective action program performance review report (per Condition 35E)
  - Radon flux survey report (per Condition 36E)
  - Other items as necessary to align with DP-200 annual reporting requirement

Section 6 – CO Mandated Third-Party Review

Per Condition 4(a) of the CO, HMC has previously submitted the third-party consultant qualifications to the NRC for review and approval on April 14, 2017. The NRC approved the third-party consultant's qualifications on May 3, 2017.

Per Condition 4(b) of the CO, HMC has submitted a copy of this Self-Assessment Report to the third-party consultant for review and comment. The table below lists the comments received from the third-party reviewer, as well as the actions taken to address and resolve each comment.

Reviewer Questions/Comments
3rd Party Reviewer: Matthew Arno, PhD, PE, CHP – Foxfire Scientific Inc.

#	Section	Comment	Resolution
GENERAL COMMENTS			
GC-1	ALL	The technical approach to be used was the "5 Whys" method as detailed in Homestake's July 26, 2017 letter. The Confirmatory Order requires this methodology to be used since that is the methodology Homestake stated they would use. Throughout the root cause analysis, there are references to asking "why?" but there is no detailed presentation of the series of "why" questions asked or the answers obtained for each of the identified consolidated deficiency groups. We were expecting to see a series of "Why" questions similar to the process used and documented in 2017 for root cause analysis of the 5 apparent violations. It appears the root cause analysis process jumped ahead to assigning various safety culture trait deficiencies as the contributing causes for all identified non-compliances. It is not clear if potential contributing causes other than safety culture trait deficiencies were considered. Two root causes are identified in Section 3.4, but the detail and process for how these conclusions were reached is missing. We do concur that the identified safety culture trait deficiencies are	In the evaluation of the regulatory compliance deficiencies discovered in Phase II of the self-assessment, the "5 Whys" method was tailored to allow grouping of compliance gaps into the following five broadly inclusive consolidated deficiency groups, which captured the answers to the 1st Why question, "Why did HMC have compliance gaps?," to avoid duplicative and repetitive answers to a large number of the same or very similar compliance gaps identified in the Phase II Gap Analysis: 1. Policy and procedural deficiencies 2. Record retention deficiencies 3. Personnel qualifications and training deficiencies 4. Reporting and posting deficiencies 5. Corrective action deficiencies The root cause analysis did not "jump ahead to assigning various safety culture trait deficiencies." Rather, the asking of the "Why" questions led to the conclusion that all the compliance deficiencies were related to either a human performance or organizational oversight cause. Subsequent "Why" questions led the team to conclude that all of the contributing factors were related to

#	Section	Comment	Resolution
		contributing causes for the identified non-compliances. We also concur that the two identified root causes are root causes for the collection of regulatory compliance deficiencies. However, without the detailed documentation of the 5 Whys process, it is not clear if these root and contributing causes are complete and whether there may be other root or contributing causes.	weaknesses in the NRC Safety Culture traits. These weaknesses were best described and categorized by using the structure and language provided by NUREG-2165, *Safety Culture Common Language*. Once this structure was applied to the five broadly inclusive consolidated deficiency groups, the team did review each individual compliance gap to ensure that this process did in fact comprise the complete universe of contributing factors. This adaptation of the "5 Whys" methodology did not readily lend itself to documentation using the most common fishbone diagram method, so a tabular method as provided in Section 3.3 was employed. Subsequent "Why" questions drilled down through the safety culture traits and attributes of NUREG-2165 until all applicable contributing factors were identified. The team did choose not to prepare documentation describing each individual "Why" question given the similarity and redundancy of the answers in the initial iterations of the process. In addition to placement of the identified gaps within categories, the team also reviewed all individual deficiencies to assure that the corrective actions identified for the categories did not miss any particular corrective action required for that individual deficiency. There were no compliance gaps identified where the corrective actions identified for the category would not also be sufficient to fully address the individual compliance gap. This step provided additional assurance that no contributing factors had been missed, or omitted, from the analysis. This comment has been noted, but no changes have been made to the report in response to this comment.

#	Section	Comment	Resolution
GC-2	ALL	The "Personnel qualification and training deficiencies" deficiency group should be expanded to include staffing deficiencies. As noted in Section 3.3.4.1, "full" staffing of the site has been only recently achieved. It is not clear what process was used to determine the full staffing needs of the site. While that determination itself is beyond the scope of the assessment, it should be an action item resulting from the assessment.	While staffing that did not encompass the required range of knowledge, skills, and abilities was observed, sufficient staffing numbers alone was not seen as a significant factor in any specific deficiency. Corrective action #6 was established to *". . . determine and establish the site staffing levels necessary for safe and effective implementation of key functions based on experience; training; certifications; knowledge-management needs; and timing of expected retirements, resignations, and reassignments."*
GC-3	ALL	Performance-based license conditions are usually used for licensees with smoothly operating and well-run programs where the licensee and its staff can be trusted to handle the details of program implementation. These traits do not apply to Homestake. While Homestake may propose license changes to rewrite the license as a performance-based license, it should be fore-warned that the NRC may not have sufficient trust that Homestake can adequately implement a performance-based approach.	The concept of converting to a performance-based license originated from discussions with the NRC Project Manager and regional inspectors concerning ways to better enable the licensee to maintain the license current. Actual development and submittal of a proposed performance-based license revision will only occur after further discussions with all regulators. This comment has been noted, but no changes have been made to the report in response to this comment.
SPECIFIC COMMENTS			
GC-4	1.2.1 and 2.1	It is our understanding the Confirmatory Order has been modified, especially with respect to the deadlines for completion of the various requirements. The modifying letters or correspondence should be cited.	While the dates have changed on some specific items, the changes did not impact the self-assessment of deficiencies in compliance. Reference added to NRC letter of December 26, 2017, ADAMS Accession #ML17340B341.

#	Section	Comment	Resolution
GC-5	3.3.4.1	Leadership, LA6 Roles, Responsibility. Communication between NRC and the licensee requires one focal point. This focal point is usually the RSO. Management has to agree that there is only one and instill that notion to the organization. There was no mechanism to ensure how to document discussions with memo for records, email or written amendment. If telephonic discussions were done, a memo for record or other written document needed to be prepared and file. With multiple POCs, it is very hard to enforce and keep everyone apprised of what's going on and how it impacts their individual and global operation and invites disaster and communication breakdown. At a minimum, these multiple POC discussions should have funneled into the RSO or site manager with follow up. This was not done.	Comment noted, no change to the final report. The importance of clearly established roles and responsibilities at the Site was recognized by the assessment team. The lack of a clearly defined focal point for all situations is cited as a contributing factor for several deficiencies and is a key component of proposed corrective actions #1 and #2.
GC-6	4.3.1.3 Bullet 1	This bullet gives the impression there is a tradeoff between safety, operations, workforce, budgets, and business plans. Delete or reword. As part of a corporate commitment to safety, it should be rank ordered 1) Safety, 2) Regulatory Compliance, 3) everything else.	The intent of that bullet was to discuss how safety remains a prime consideration in the development of each. The statement has been reworded as follows to better reflect that intent: • *"explaining how safety is the prime consideration in preparation of operational activities, workforce planning, budgets, and business plans"*
	NRC Requirements (Assessment Appendix B)		
GC-7	-	114 non-compliances with NRC regulations or license conditions were identified by the assessment. Specific comments regarding these non-compliances are detailed in Table 1 below.	Comment noted, and each comment of Table 1 is addressed separately later in this section.

#	Section	Comment	Resolution
GC-8	-	Based on the line numbering in Appendix B of the assessment, there were approximately 400 NRC requirements where the assessment determined that Homestake was in full compliance with the requirement. Since no documentation regarding the identified areas of full compliance was provided, we are providing no opinion regarding the accuracy of those conclusions.	There were >500 individual requirements assessed in the NRC tab of this workbook. All items assessed, compliant and non-compliant, are captured in the Regulatory Compliance Matrix (Excel workbook). Appendix B is a filtered report from that workbook only showing those items not in full compliance which require cause analysis and action to resolve.
GC-9	-	Assessment Appendix B does need to be reformatted to improve readability. We had to export the appendix to Excel™ to alter the row heights to enable cut-off text to be read and to increase the font size. Also, repeat the table header on each page.	Font changed, and Table reformatted to address readability concerns. Table headers have been changed to repeat at the top of each new page. An information copy of the native format files (Excel) will be provided to the NRC for ease of review.
	OSHA Requirements (Assessment Appendix C)		
GC-10	-	169 non-compliances with OSHA regulations were identified by the assessment. Regardless of whether the compliance status was listed as "Partial" or "No," for almost all of the non- compliances, the primary issue was that a top-level policy existed but yet there was little or no flow-down to lower-level procedures and specific requirements and provisions were often missing. Foxfire agrees with this basic conclusion and the identified consolidated deficiency groupings. There was some disagreement with whether the compliance status should be considered as Partial or No (i.e., none) for some specific requirements. However, since these disagreements would not impact the root cause analysis of the deficiencies or the required corrective actions, they are not detailed in this review.	Comment noted, no change to the final report.

#	Section	Comment	Resolution
GC-11	-	As with the NRC requirements compliance matrix, only the identified non-compliances were included in the assessment appendix. Based on the line numbering in Appendix C of the assessment, there were some 600+ OSHA requirements that were either not applicable to Homestake or were instances where the assessment determined that Homestake was in full compliance with the requirement. Since no documentation regarding the identified areas of full compliance or inapplicability was provided, we are providing no opinion regarding the accuracy of those conclusions.	There were >800 individual requirements assessed in the OSHA tab of this workbook. All items assessed, compliant and non-compliant, are captured in the Regulatory Compliance Matrix (Excel workbook). Appendix C is a filtered report from that workbook only showing those items not in full compliance which require cause analysis and action to resolve.
GC-12	-	Assessment Appendix C does need to be reformatted to improve readability. We had to export the appendix to Excel™ to alter the row heights to enable cut-off text to be read and to increase the font size. Also, repeat the table header on each page.	Font changed, and Table reformatted to address readability concerns. Table headers have been changed to repeat at the top of each new page. An information copy of the native format files (Excel) will be provided to the NRC for ease of review.

#	Line #	Comment	Resolution
Specific comments regarding identified non-compliances with NRC requirements. [2]			
SC-1	Many	There are many more policy and procedural deficiencies than have been noted. Consider categorizing rows 11, 12, 64, 84, 85, 91, 120, 151, 155, 267, 268, 268, 277, 283, 286, 287, 356, 374, and 506, as policy and procedural deficiencies as well.	Added rows 11, 12, 64, 84, 85, 91, 120, 151, 155, 267, 268, 269, 277, 285, 286, 287, 356, 374, and 506 to the policy and procedural deficiencies category.
SC-2	Many	Additional non-compliances should be noted as record retention deficiencies as well, in particular lines 90, 282, 285, 329, 349, 350, 353, 354, 429, and 458.	Added rows 90, 282, 283, 329, 349, 350, 353, 354, 429, and 458 to the record retention deficiencies category.
SC-3	22	The requirement states "Written procedures shall be established for environmental monitoring, bioassay analysis, and instrument calibrations." The comment talks about procedures for disposal of wastes in the STP, operation of the zeolite system, and operation of the evaporation ponds. The corrective action also talks about the lack of these procedures. However, at no time, does the analysis address whether or not they have proper procedures for environmental monitoring, bioassay analysis, and instrument calibrations. There are procedures for those items. Are they adequate?	Comment in line 22 is addressing the NRC L-IV violation cited in 2017 against this License Condition (LC 23). HMC procedures for other areas of environmental monitoring, bioassay analysis, and instrument calibrations were deemed adequate, with the exceptions noted in other line items dealing with each topic specifically. No changes to the report made in response to this comment.
SC-4	44	This is a Reporting and Posting deficiency too as all the sampling data needs to be reported to the NRC. If Homestake doesn't have a proper procedure for collecting these data, then it is unlikely Homestake has a proper procedure for reporting these data.	Proper data for the correct parameters of the required groundwater sample points is being reported to NRC, but the site procedure had not been updated to reflect field practice. For that reason, this line was categorized only in the policy and procedural deficiencies category. No changes to the report made in response to this comment.

[2] Line number refers to the row number of the Regulatory Compliance Matrix (RCM) (Excel™ spreadsheet). Results from this RCM are reproduced as Appendix B of this report.

#	Line #	Comment	Resolution
SC-5	50	The corrective action should include development of a procedure on how to operate the evaporations systems located in each pond, how to identify and correct deficiencies, and how to report these deficiencies to the NRC. So, this is also a reporting and posting deficiency.	SOP 23 – Evaporation Pond Operations contains the following sections for routine pond operations: • Daily Inspections, • Fluid Transfer, • Leak Detector Monitoring, • Evaporative Spray Systems Operations and Maintenance, and • Bird Mitigation as well as the following non-routine pond operations such as • Removal of Solids from WCP, • Control of Algae, • Inspections and Liner Repair, and • Sample Collection Additionally, SOP-23 specifies the following required documentation: • Daily inspections of evaporation ponds (Daily Water System Inspection Form) • Flow meter totalizer readings (Additional Well Information Form) • Wildlife observations and dispersal activities (Wildlife Dispersal Activity Form) • Annual detailed geotechnical inspections of pond embankments • Quarterly water quality samples from each pond Action or alert thresholds for initiating further action and/or reporting were not specifically addressed in the SOP. Added line 50 to the reporting and postings deficiencies category.
SC-6	61	The corrective action should include development and documentation of a comprehensive Compliance Monitoring Program. The need for this is in the comment but not carried forward to the corrective action. This is also a reporting and posting deficiency.	This item is being addressed in the corrective action of line 44 (LC 35.1) which states that the updated GW monitoring plan changes have been submitted to the NRC on Nov 20, 2017 (ADAMS Accession #ML18018A102) and SOP-17 will be revised based on NRC approval of that license amendment request. No changes to the report made in response to this comment.

#	Line #	Comment	Resolution
SC-7	85	Corrective action suggests inclusion of NRC address in appropriate policy and procedure. This corrective action should suggest inclusion of NRC phone number in appropriate policy and procedure.	Corrective Action revised to read: *Revise appropriate policy and procedures to identify the NRC phone number for the submittal of verbal reports. As an alternative, this can be included in the procedure that provides the records retention period or a new document on records and written correspondence in general.*
SC-8	90	This is a Record Retention deficiency, too. All the data collected to support the ALARA audit, effluent and environmental monitoring reports will need to be retained for a specific period of time.	Added row 90 to the record retention deficiencies category.
SC-9	152	The corrective action really doesn't relate to the requirement. Is Homestake going to make a request to accept waste from "other sources" to place on their tailings pile? The best corrective action would be to set a policy that waste will not be accepted from "other sources." If this approach is taken, then it really becomes just a Policy and Procedural deficiency.	In approval of the 1993 DRP, HMC was authorized to place certain mill debris wastes in specified areas of the tailings piles. In any case, the requirement to achieve levels of radon-222 releases not exceeding 20 pCi/m2s averaged over the entire impoundment must be met on each tailings pile. For 2016, this level was not achieved for the LTP since its final barrier is not in place due to the remaining flushing wells. The corrective action is being driven by actions to comply with License Condition 36E, and this is a duplicative citation of the radon flux standard. No changes to the report made in response to this comment.
SC-10	173	Comment and Corrective Action discuss a Reg Guide, this isn't a Reg Guide row.	Error in data table, the requirement of line 173 is implemented and this item has been removed from the list of deficiencies.
SC-11	180	The corrective action is too vague. It should be modified to state something along the lines of: "Provide in RPPM and SOP13, the process for accounting for occupational exposure received at other facilities during the current calendar year, when evaluating the occupational dose likely to be received at the Homestake facility."	Agree, matrix updated.

#	Line #	Comment	Resolution
SC-12	200	While the Corrective Action is acceptable, it would be better to place a statement in the RPPM that minors are not allowed to work at the facility.	Comment noted. RSO will decide how this will be addressed in update of the RPPM. No changes to the report made in response to this comment.
SC-13	203	The comment is "There is no reference to a TEDE to the general public of .002 rem." This is an incorrect statement as the citation is for a dose rate of 0.002 rem per hour in unrestricted areas. The Corrective Action of adding the dose rate to Table 1 of the RPPM is certainly appropriate.	Agree, matrix comment updated to reflect 0.002 rem per hour in unrestricted areas
SC-14	314	The comment mis-understands the requirement for bioassay sampling 14 days after termination from tasks involving uranium. The intent here is that an employee is working with uranium and in a routine bioassay program. The employee then changes jobs and is no longer working with uranium, so he/she should provide a follow-up bioassay within 14 days of "ending work with uranium". The intent is not to have an ex-employee back within 14 days of termination for a "termination" bioassay sample. Termination bioassay samples should be required on the day of termination. They are urine samples, so they shouldn't be that hard to collect.	Agree that these termination bioassay samples should be required on the day of termination, but the use of contract labor to perform work at the HMC Site does not guarantee which specific contractor personnel will or will not be returning to the site over the life of a project. If an employee in the bioassay program leaves the employment of a Site contractor while off-site, that ex-employee is no longer available to provide the termination sample. In HMC's 2017 annual ALARA audit, they document an ongoing problem with the collecting of termination bioassays for contractor personnel. While previous corrective actions have been partially successful, they have not eliminated the problem. No changes to the report made in response to this comment.

#	Line #	Comment	Resolution
SC-15	328	The citation is discussing "direct bioassay measurements" (i.e. whole body counting or lung counting). The comment is discussing "repeat urinalysis after showering and changing clothes." The corrective action of "Revise SOP 14 to require shower and change of clothes if external contamination is present is not on point. It is highly unlikely that one would know a uranium urine sample is contaminated at a point where the employee could shower, change, and provide another urine sample. (that is representative of an intake during an incident). It is not clear that an employee would need to shower and change to provide a urine sample as part of a routine bioassay program as the next routine sample could be several days or weeks later. A better corrective action would be to develop a procedure for hand washing and cleaning of genitalia prior to providing a urine sample. Much like one does when providing a urine sample at the doctor's office.	Agree that the focus of this requirement is prevention of false positives during direct bioassay measurements, and as such is not applicable to the HMC bioassay program. This item has been changed to N/A in the matrix. SOP-14 currently provide instructions to the workers to prevent accidental contamination of the sample such as hand washing, removal of contaminated clothing, and use of a clean area for sample collection. No further update needed to the SOP.
SC-16	329	This is also a Record Retention deficiency as any changes to the procedure should include the record retention requirements, too.	Added row 329 to the record retention deficiencies category.
SC-17	339	The comment and corrective action address performing analysis for uranium concentrations. The citation isn't about proper uranium analysis. It is about proper handling, processing, and storage of radioactive material. These techniques are addressed in the RPPM. Of course, one must properly handle the samples collected in the cited procedures, so those requirements should be added to these procedures, too.	The sample analysis tasks listed in the comment and corrective actions were specific examples of routine handling, processing, and storage of radioactive materials that did not have explicit written standard operating procedures in place to address the requirement. Other routine tasks involving the handling, processing, and storage of radioactive material did have written standard operating procedures in place to address the requirement. No changes to the report made in response to this comment.

#	Line #	Comment	Resolution
SC-18	341	The identified corrective action does not address the issues identified in the comments, i.e., making sure all procedures are in the procedures manuals. The comment and corrective action do not capture the intent of the Reg Guide. There should be a Radiation Safety Manual with a lot of "generic information" provided for the reader, and then Appendices or separate manuals filled with specific procedures on how to do various tasks.	Corrective action in the matrix has been updated to also reflect making sure all procedures are in the procedures manuals. Currently the SOPs related to implementation of the RPPM are contained within the larger Site SOP Manual. This manual contains not only SOPs that implement the RPPM, but also some that implement other aspects of Site operations (e.g., lockout/tagout). This manual is issued as a single revised document. While this meets the intent of the requirement, is does not easily allow updates to individual SOPs without issuing a revision of the entire document.
SC-19	346	There is a record retention aspect to the RWP program that needs to be addressed.	RWP record retention is addressed by 10 CFR 20.2102(b) in line 267 of the matrix.
SC-20	347	There is a record retention aspect to designation another to sign-off on RWPs. Some type of credential/skill checklist should be completed and retained in the record for each individual given this authority.	Agree, updated the corrective action to state: *"Change the SOP to ensure that all RWPs are signed by the RSO or designated alternate. Formally identify the RSO designated alternate in a controlled document showing that the alternate has the necessary credentials and/or received adequate specialized radiation protection training."*
SC-21	348	There is a record retention aspect to these weekly inspections. If a record is not made and retained for review, then the inspection never occurred.	Agree, updated the corrective action to state: *"Include RSO or facility foreman attendance and frequency requirements (weekly) in RPPM and SOPs and create a form to capture completion for records."*
SC-22	365	If the RSO does not have the training recommended by the Reg Guide to be the RSO, then how was he appointed so by the company and/or the NRC? This is also a Policy and Procedure deficiency since they didn't have a proper Job Description with proper minimum qualifications.	HMC is submitting a license amendment request to NRC to approve current RPPM provisions versus those contained in RG 8.31 since HMC no longer operates a mill for processing of uranium ores. No changes to the report made in response to this comment.

#	Line #	Comment	Resolution
SC-23	375	This citation also addresses non-radiological hazards. Homestake needs to make sure there is an equivalent training program (with policies, procedures, etc.) that address the non-radiological hazards on site.	Agree, and the non-radiological hazard recognition and awareness is covered under the OSHA gap analysis of this report. No changes to the report made in response to this comment.
SC-24	394	Homestake needs some type of fire prevention plan that outlines all the required equipment and training. Where does that exist? This would also be a Policy and Procedure deficiency if such a program is not documented.	Agree, and the need for a fire protection program is covered under the OSHA gap analysis of this report (29 CFR 1910 Subpart L). No changes to the report made in response to this comment.
SC-25	395	The need for semi-annual fire drills should be documented in the fire prevention plan, so this is somewhat of a Policy and Procedure deficiency too.	Agree, added this row to the policy and procedural deficiencies category.
SC-26	435	Is there a reporting deficiency here too? Are they required to report issues when they find more than 775 gallons per acre per day in the leak detection sumps?	The occurrence would be included in the semiannual and/or annual reports. Added row 435 to the reporting deficiencies category.
SC-27	501, 502	Homestake should develop a Policy and Procedure on what should (and should not) be posted on the "official bulletin board". This procedure can also provide details on where information can be found that cannot be posted. Perhaps the procedure would include a table of where such items can be found, and this can be posted on the "official bulletin board". This would be a Policy and Procedural deficiency too.	Added the following statement to the corrective action for these line items: *"Develop a procedure governing required content of official bulletin boards and their upkeep."*
SC-28	506	Policies and Procedures need to be updated to improve the training program and records of training need to be maintained for review.	Comment noted. Update of RPPM and implementing procedures is in progress. No changes to the report made in response to this comment.
SC-29	508	Make this statement part of the RPPM and cover it in Radiation Safety Training.	Comment noted. Update of RPPM and implementing procedures is in progress. No changes to the report made in response to this comment.
SC-30	509	Homestake should make a form or state that they'll use the NRC Form 5 for making these reports as necessary.	Comment noted. Update of RPPM and implementing procedures is in progress. No changes to the report made in response to this comment.

#	Line #	Comment	Resolution
SC-31	510	Homestake should make this part of the Radiation Safety training course and create a "dose history request form" for anyone who wishes to receive a letter about their dose.	Update of the training materials should follow update of the RPPM and/or implementing procedures to address this requirement. The following statement has been added to the corrective actions for this line item: *"Update Radiation Safety training to reflect the updated requirements of SOP-13 once revised."*
SC-32	511	Homestake should make this part of the Radiation Safety training course and include this information on a "dose history request form", so they won't forget about the 30-day requirement.	Update of the training materials should follow update of the RPPM and/or implementing procedures to address this requirement. The following statement has been added to the corrective actions for this line item: *"Update Radiation Safety training to reflect the updated requirements of SOP-13 once revised."*
SC-33	512	Homestake should make this a part of the Radiation Safety manual, make all the "rules" about reporting (all types of radiological events) a part of the RPPM, and include a reference to the record retention policy/procedure that needs to be developed.	Updated the corrective action to state: *"Develop an SOP containing a centralized and integrated list of reporting criteria for the site. For each report, identify the criteria/threshold, required content, and addressees as specified in the governing regulations."*
SC-34	513	Homestake should make this part of the Radiation Safety training course and include this information on a "dose history request form", so a terminating employee can complete this form during their exit interview.	Update of the training materials should follow update of the RPPM and/or implementing procedures to address this requirement. The following statement has been added to the corrective actions for this line item: *"Update Radiation Safety training to reflect the updated requirements of SOP-13 once revised."*
SC-35	515-524, 526	The majority of the "Worker Rights" are provided in the "Notice to Employees" that must be posted in the workplace. Elsewhere in the table it was stated that a bulletin board had been posted for these types of items. Homestake should compare the "Notice to Employees" to 10CFR19 and list any other "worker rights" in the RPPM. That would be the simplest approach. Homestake could also spend time during Radiation Safety training discussing what an inspection is like, what one can and cannot do in an inspection, etc.	Agree, and this is part of the development process for the corrective action of lines 501 and 502 stating: *"Develop a procedure governing required content of official bulletin boards and their upkeep."* No changes to the report made in response to this comment.

Section 7 – References

The following specific documents are referenced in the body of this report. Additional reference documents were consulted in the conduct of the self-assessment and are captured in the Regulatory Compliance Matrix.

- USNRC Radioactive Material License SUA-1471, Amendment 49, dated March 28, 2017.
- New Mexico Groundwater Discharge Permit DP-200, dated September 25, 2014
- Letter from USNRC to HMC, U.S. Nuclear Regulatory Commission Records Review, Homestake Mining Company of California, dated October 4, 2016, ADAMS Accession #ML16251A526.
- Letter from USNRC to HMC, Confirmatory Order of March 28, 2017 modifying License No. SUA-1471, EA-16-114, dated April 27, 2017, ADAMS Accession #ML17121A311.
- Letter from Davis Wright Tremaine, LLP on behalf of HMC to USNRC, Submission of Root Cause Protocol under Condition 1 of the Confirmatory Order of March 28, 2017 modifying License No. SUA-1471, EA-16-114, dated July 26, 2017, ADAMS Accession #ML17212A026.
- Letter from USNRC to HMC, Acknowledgment of Correspondence Received Per Conditions 1, 8, 10, and 12 of the Confirmatory Order Dated March 28, 2017 (LICENSE NO. SUA-1471, DOCKET NO. 40-8903), dated August 1, 2017, ADAMS Accession #ML17213A291.
- Letter from Davis Wright Tremaine, LLP on behalf of HMC to USNRC, Submittal of Root Cause Analysis Under Conditions 1 and 2 of the Confirmatory Order of March 28, 2017 Modifying License No. SUA-1471, dated September 15, 2017, ADAMS Accession #ML17263A125.
- Letter from USNRC to HMC, NRC Response to HMC Request for Extension of Time for Submission of Comprehensive Site Assessment, dated December 26, 2017, ADAMS Accession #ML17340B341.
- USNRC Safety Culture Policy Statement, 76 FR 34773, dated June 14, 2011.
- NUREG-2165, *Safety Culture Common Language*, U.S. Nuclear Regulatory Commission, March 2014.

Appendix A:

Crosswalk of Confirmatory Order Condition Status

Appendix B:

Crosswalk of NRC Regulations, License SUA-1471, and Other Obligation Gaps

Appendix C:

Crosswalk of OSHA Obligation Gaps

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August 24, 2018

Gerald George
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Re: Homestake Mining Company Regulatory Compliance Self-Assessment Review

Dear Mr. George,

On August 2, 2018, Foxfire Scientific was sent the draft Regulatory Compliance Self-Assessment [for the] HMC Grants Reclamation Project prepared by Enercon Services as required by Condition 4.b of the NRC's March 28, 2017 Confirmatory Order issued to Homestake Mining Company of California. We were requested to complete our review by August 24, 2018. Below are our comments and recommendations on the assessment.

General Comments

The technical approach to be used was the "5 Whys" method as detailed in Homestake's July 26, 2017 letter. The Confirmatory Order requires this methodology to be used since that is the methodology Homestake stated they would use. Throughout the root cause analysis, there are references to asking "why?" but there is no detailed presentation of the series of "why" questions asked or the answers obtained for each of the identified consolidated deficiency groups. We were expecting to see a series of "Why" questions similar to the process used and documented in 2017 for root cause analysis of the 5 apparent violations.

It appears the root cause analysis process jumped ahead to assigning various safety culture trait deficiencies as the contributing causes for all identified non-compliances. It is not clear if potential contributing causes other than safety culture trait deficiencies were considered. Two root causes are identified in Section 3.4, but the detail and process for how these conclusions were reached is missing. We do concur that the identified safety culture trait deficiencies are contributing causes for the identified non-compliances. We also concur that the two identified root causes are root causes for the collection of regulatory compliance deficiencies. However, without the detailed documentation of the 5 Whys process, it is not clear if these root and contributing causes are complete and whether there may be other root or contributing causes.

The "Personnel qualification and training deficiencies" deficiency group should be expanded to include staffing deficiencies. As noted in Section 3.3.4.1, "full" staffing of the site has been only recently achieved. It is not clear what process was used to determine the full staffing needs of the site. While that determination itself is beyond the scope of the assessment, it should be an action item resulting from the assessment.

Performance-based license conditions are usually used for licensees with smoothly operating and well-run programs where the licensee and its staff can be trusted to handle the details of program implementation. These traits do not apply to Homestake. While Homestake may propose license changes to rewrite the license as a performance-based license, it should be fore-warned that the NRC may not have sufficient trust that Homestake can adequately implement a performance-based approach.

Specific Comments

Sections 1.2.1 and 2.1: It is our understanding the Confirmatory Order has been modified, especially with respect to the deadlines for completion of the various requirements. The modifying letters or correspondence should be cited.

Section 3.3.4.1 Leadership, LA6 Roles, Responsibility. Communication between NRC and the licensee requires one focal point. This focal point is usually the RSO. Management has to agree that there is only one and instill that notion to the organization. There was no mechanism to ensure how to document discussions with memo for records, email or written amendment. If telephonic discussions were done, a memo for record or other written document needed to be prepared and file. With multiple POCs, it is very hard to enforce and keep everyone apprised of what's going on and how it impacts their individual and global operation and invites disaster and communication breakdown. At a minimum, these multiple POC discussions should have funneled into the RSO or site manager with follow up. This was not done.

Section 4.3.1.3 bullet 1: This bullet gives the impression there is a tradeoff between safety, operations, workforce, budgets, and business plans. Delete or reword. As part of a corporate commitment to safety, it should be rank ordered 1) Safety, 2) Regulatory Compliance, 3) everything else.

NRC Requirements (Assessment Appendix B)

114 non-compliances with NRC regulations or license conditions were identified by the assessment. Specific comments regarding these non-compliances are detailed in Table 1 below.

Based on the line numbering in Appendix B of the assessment, there were approximately 400 NRC requirements where the assessment determined that Homestake was in full compliance with the requirement. Since no documentation regarding the identified areas of full compliance was provided, we are providing no opinion regarding the accuracy of those conclusions.

Assessment Appendix B does need to be reformatted to improve readability. We had to export the appendix to Excel™ to alter the row heights to enable cut-off text to be read and to increase the font size. Also, repeat the table header on each page.

OSHA Requirements (Assessment Appendix C)

169 non-compliances with OSHA regulations were identified by the assessment. Regardless of whether the compliance status was listed as "Partial" or "No," for almost all of the non-compliances, the primary issue was that a top-level policy existed but yet there was little or no flow-down to lower-level procedures and specific requirements and provisions were often missing. Foxfire agrees with this basic conclusion and the identified consolidated deficiency groupings. There was some disagreement with whether the compliance status should be considered as Partial or No (i.e., none) for some specific requirements. However, since these disagreements would not impact the root cause analysis of the deficiencies or the required corrective actions, they are not detailed in this review.

As with the NRC requirements compliance matrix, only the identified non-compliances were included in the assessment appendix. Based on the line numbering in Appendix C of the assessment, there were some 600+ OSHA requirements that were either not applicable to Homestake or were instances where the assessment determined that Homestake was in full compliance with the requirement. Since no documentation regarding the identified areas of full compliance or inapplicability was provided, we are providing no opinion regarding the accuracy of those conclusions.

Assessment Appendix C does need to be reformatted to improve readability. We had to export the appendix to Excel™ to alter the row heights to enable cut-off text to be read and to increase the font size. Also, repeat the table header on each page.

If you have any additional questions or need more information, please feel free to contact me at 817-995-6762 or arno@foxfirescientific.com.

Sincerely,

Matthew Arno, PhD, PE, CHP

Table 1. Specific comments regarding identified non-compliances with NRC requirements.

#	Line #	Comment
1	Many	There are many more policy and procedural deficiencies than have been noted. Consider categorizing rows 11, 12, 64, 84, 85, 91, 120, 151, 155, 267, 268, 268, 277, 283, 286, 287, 356, 374, and 506, as policy and procedural deficiencies as well.
2	Many	Additional non-compliances should be noted as record retention deficiencies as well, in particular lines 90, 282, 285, 329, 349, 350, 353, 354, 429, and 458.
3	22	The requirement states "Written procedures shall be established for environmental monitoring, bioassay analysis, and instrument calibrations." The comment talks about procedures for disposal of wastes in the STP, operation of the zeolite system, and operation of the evaporation ponds. The corrective action also talks about the lack of these procedures. However, at no time, does the analysis address whether or not they have proper procedures for environmental monitoring, bioassay analysis, and instrument calibrations. There are procedures for those items. Are they adequate?
4	44	This is a Reporting and Posting deficiency too as all the sampling data needs to be reported to the NRC. If Homestake doesn't have a proper procedure for collecting these data, then it is unlikely Homestake has a proper procedure for reporting these data.
5	50	The corrective action should include development of a procedure on how to operate the evaporations systems located in each pond, how to identify and correct deficiencies, and how to report these deficiencies to the NRC. So, this is also a reporting and posting deficiency.
6	61	The corrective action should include development and documentation of a comprehensive Compliance Monitoring Program. The need for this is in the comment but not carried forward to the corrective action. This is also a reporting and posting deficiency.
7	85	Corrective action suggests inclusion of NRC address in appropriate policy and procedure. This corrective action should suggest inclusion of NRC phone number in appropriate policy and procedure.
8	90	This is a Record Retention deficiency, too. All the data collected to support the ALARA audit, effluent and environmental monitoring reports will need to be retained for a specific period of time.
9	152	The corrective action really doesn't relate to the requirement. Is Homestake going to make a request to accept waste from "other sources" to place on their tailings pile? The best corrective action would be to set a policy that waste will not be accepted from "other sources." If this approach is taken, then it really becomes just a Policy and Procedural deficiency.
10	173	Comment and Corrective Action discuss a Reg Guide, this isn't a Reg Guide row.
11	180	The corrective action is too vague. It should be modified to state something along the lines of: "Provide in RPPM and SOP13, the process for accounting for occupational exposure received at other facilities during the current calendar year, when evaluating the occupational dose likely to be received at the Homestake facility."

12	200	While the Corrective Action is acceptable, it would be better to place a statement in the RPPM that minors are not allowed to work at the facility.
13	203	The comment is "There is no reference to a TEDE to the general public of .002 rem." This is an incorrect statement as the citation is for a dose rate of 0.002 rem per hour in unrestricted areas. The Corrective Action of adding the dose rate to Table 1 of the RPPM is certainly appropriate.
14	314	The comment mis-understands the requirement for bioassay sampling 14 days after termination from tasks involving uranium. The intent here is that an employee is working with uranium and in a routine bioassay program. The employee then changes jobs and is no longer working with uranium, so he/she should provide a follow-up bioassay within 14 days of "ending work with uranium". The intent is not to have an ex-employee back within 14 days of termination for a "termination" bioassay sample. Termination bioassay samples should be required on the day of termination. They are urine samples, so they shouldn't be that hard to collect.
15	328	The citation is discussing "direct bioassay measurements" (i.e. whole body counting or lung counting). The comment is discussing "repeat urinalysis after showering and changing clothes." The corrective action of "Revise SOP 14 to require shower and change of clothes if external contamination is present is not on point. It is highly unlikely that one would know a uranium urine sample is contaminated at a point where the employee could shower, change, and provide another urine sample. (that is representative of an intake during an incident). It is not clear that an employee would need to shower and change to provide a urine sample as part of a routine bioassay program as the next routine sample could be several days or weeks later. A better corrective action would be to develop a procedure for hand washing and cleaning of genitalia prior to providing a urine sample. Much like one does when providing a urine sample at the doctor's office.
16	329	This is also a Record Retention deficiency as any changes to the procedure should include the record retention requirements, too.
17	339	The comment and corrective action address performing analysis for uranium concentrations. The citation isn't about proper uranium analysis. It is about proper handling, processing, and storage of radioactive material. These techniques are addressed in the RPPM. Of course, one must properly handle the samples collected in the cited procedures, so those requirements should be added to these procedures, too.
18	341	The identified corrective action does not address the issues identified in the comments, i..e, making sure all procedures are in the procedures manuals. The comment and corrective action do not capture the intent of the Reg Guide. There should be a Radiation Safety Manual with a lot of "generic information" provided for the reader, and then Appendices or separate manuals filled with specific procedures on how to do various tasks.
19	346	There is a record retention aspect to the RWP program that needs to be addressed.
20	347	There is a record retention aspect to designation another to sign-off on RWPs. Some type of credential/skill checklist should be completed and retained in the

		record for each individual given this authority.
21	348	There is a record retention aspect to these weekly inspections. If a record is not made and retained for review, then the inspection never occurred.
22	365	If the RSO does not have the training recommended by the Reg Guide to be the RSO, then how was he appointed so by the company and/or the NRC? This is also a Policy and Procedure deficiency since they didn't have a proper Job Description with proper minimum qualifications.
23	375	This citation also addresses non-radiological hazards. Homestake needs to make sure there is an equivalent training program (with policies, procedures, etc.) that address the non-radiological hazards on site.
24	394	Homestake needs some type of fire prevention plan that outlines all the required equipment and training. Where does that exist? This would also be a Policy and Procedure deficiency if such a program is not documented.
25	395	The need for semi-annual fire drills should be documented in the fire prevention plan, so this is somewhat of a Policy and Procedure deficiency too.
26	435	Is there a reporting deficiency here too? Are they required to report issues when they find more than 775 gallons per acre per day in the leak detection sumps?
27	501, 502	Homestake should develop a Policy and Procedure on what should (and should not) be posted on the "official bulletin board". This procedure can also provide details on where information can be found that cannot be posted. Perhaps the procedure would include a table of where such items can be found and this can be posted on the "official bulletin board". This would be a Policy and Procedural deficiency too.
28	506	Policies and Procedures need to be updated to improve the training program and records of training need to be maintained for review.
29	508	Make this statement part of the RPPM and cover it in Radiation Safety Training
30	509	Homestake should make a form or state that they'll use the NRC Form 5 for making these reports as necessary.
31	510	Homestake should make this part of the Radiation Safety training course and create a "dose history request form" for anyone who wishes to receive a letter about their dose.
32	511	Homestake should make this part of the Radiation Safety training course and include this information on a "dose history request form", so they won't forget about the 30-day requirement.
33	512	Homestake should make this a part of the Radiation Safety manual, make all the "rules" about reporting (all types of radiological events) a part of the RPPM, and include a reference to the record retention policy/procedure that needs to be developed.
34	513	Homestake should make this part of the Radiation Safety training course and include this information on a "dose history request form", so a terminating employee can complete this form during their exit interview.
35	515-524, 526	The majority of the "Worker Rights" are provided in the "Notice to Employees" that must be posted in the workplace. Elsewhere in the table it was stated that a bulletin board had been posted for these types of items. Homestake should compare the "Notice to Employees" to 10CFR19 and list any other "worker rights" in the RPPM. That would be the simplest approach. Homestake could

		also spend time during Radiation Safety training discussing what an inspection is like, what one can and cannot do in an inspection, etc.

Appendix A
Crosswalk of Confirmatory Order Condition Status

Confirmatory Order (28 March 2017) Requirements				Compliance Open Items			
Confirmatory Order Condition	**Requirement**	**Status of Condition?**	**Comments**	**Corrective Action Items**	**Due Date**	**Status**	**Responsible**
1-a	HMC will submit its root cause protocol to an independent third party consultant with expertise in root cause analysis and provide a copy of the independent third party reviewed protocol to the NRC within 120 days of issuance of this Confirmatory Order. The root cause protocol will also be available for review during future inspections.	Satisfied	Per NRC Inspection Report 040-08903/2017-002; "The requirement under Condition 1 of the Order to submit the RCP is considered to be satisfied."				
1-b	The root cause protocol submitted to the NRC will identify any changes made by the independent third party reviewer and include a qualification statement for the independent third party reviewer. This protocol will be used to complete Conditions 2, 3, and 4 of this section.	Satisfied	Per NRC Inspection Report 040-08903/2017-002; "The requirement under Condition 1 of the Order to submit the RCP is considered to be satisfied."				
2-a	Within 30 days of submitting to NRC the root cause protocol in Condition 1 of this section, HMC will use the root cause protocol to analyze the reasons tor the apparent violations documented in the NRC's October 4, 2016 letter.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; submitted RCA via letter dated September 15, 2017 (ADAMS Accession No. ML17263A125). Licensee action of Condition 2-a complete	Per NRC Inspection Report 040-08903/2017-002; submitted RCA via letter dated September 15, 2017 (ADAMS Accession No. ML17263A125). Licensee action of Condition 2-a complete	Pending	Licensee action of Condition 2-a complete. Item will remain open until NRC completes the review of 2-b. NRC PM has this for his review and currently requires no further documents from HMC.	HMC
2-b	HMC will submit any proposed corrective actions to the NRC tor review and approval within 60 days of completing the root cause analyses	Not Complete	Per NRC Inspection Report 040-08903/2017-002; Licensee submitted the corrective action plan for the five apparent violations by letter dated November 14, 2017, (ADAMS Accession Package No. ML17320A118). Condition 2 of the Order will remain open until the NRC has reviewed and approved the licensee's proposed corrective actions.	Per NRC Inspection Report 040-08903/2017-002; Licensee submitted the corrective action plan for the five apparent violations by letter dated November 14, 2017, (ADAMS Accession Package No. ML17320A118). Condition 2 of the Order will remain open until the NRC has reviewed and approved the licensee's proposed corrective actions.	Pending	HMC submitted the corrective action plan for the five apparent violations by letter dated November 14, 2017, (ADAMS Accession Package No. ML17320A118). Condition 2 of the Order will remain open until the NRC has reviewed and approved the licensee's proposed corrective actions. RC PM has this for his review and currently requires no further documents from HMC.	HMC
3	HMC will complete an assessment of all HMC activities to determine whether all activities are authorized and are being conducted in compliance with NRC requirements. The assessment will identify areas where clarity could be added to the license. The assessment will include a written report that identities all areas assessed, the scope of the assessment, the method used to perform the assessment, the results of each assessment and any corrective actions deemed appropriate. This report will identify any proposed changes to the license and procedures. This assessment will include a review of the licensee's Safety Culture, to identify any actions that may be necessary to improve upon or enhance the Safety Culture.	Not Complete	In a letter dated December 26, 2017, NRC approved extension request to September 3, 2018.	Complete Self-Assessment	Due to NRC by 9/3/2018	ENERCON has performed self-assessment of HMC activities	ENERCON
4	HMC will engage an independent third party consultant to review and evaluate HMC's assessments described in Condition 3 of this section. That review will include a written report that identifies all areas assessed, the scope of the assessment, the method used to perform the assessment, the results of each assessment, and any proposed corrective actions. The evaluation will include the effectiveness of any actions proposed by HMC.	Not Complete	In a letter dated December 26, 2017, NRC approved extension request to September 3, 2018.	Submit 3rd party review and report on Self-Assessment	Due to NRC by 9/3/2018	Foxfire Scientific (Matt Arno) has conducted.	Foxfire Scientific
4a	HMC will submit the name and qualifications of the consultant for NRC approval within 30 days of issuance of this Confirmatory Order.	Satisfied	Per NRC Inspection Report 040-08903/2017-002; NRC approved the consultants in correspondence dated April 19 and May 3, 2017, (ADAM Accession Nos. ML17114A106 and ML17138A303).				
4b	HMC will submit a copy of the assessment described in Condition 3 of this section to the independent third party consultant within 120 days of NRC approval of the independent third party consultant.	Not Complete		Submit SA to 3rd party for review/comment.	see 3	The licensee has requested an extension of the due date for the self-assessment to September 3, 2018, (see Condition 3 above). Conditions 4b and 4c remain open and cannot be completed until the self-assessment has been completed.	HMC
4c	HMC will provide a copy of the HMC assessment, the consultant's review report, and any modifications by HMC as a result of the third party consultant's report to the NRC within 120 days of submission of the HMC assessment to the independent third party consultant.	Not Complete		Submit Self Assessment, 3rd party review report of the Self Assessment and any modification by HMC to the NRC.	see 3	The licensee has requested an extension of the due date for the self-assessment to September 3, 2018, (see Condition 3 above). Conditions 4b and 4c remain open and cannot be completed until the self-assessment has been completed.	HMC
4d	NRC will perform an audit of the assessment and the independent third party report and provide NRC audit results in writing, including any recommended changes. HMC will incorporate NRC audit results in the actions described in Condition 5 of this section.	Not Complete		NRC review of the Self Assessment reports.	Pending	NRC audit of SA report	HMC
4e	HMC will maintain copies of all reports at the site for NRC inspection.	Not Complete		Maintain copies of all Self Assessment related reports at the site for NRC review.	Ongoing Action	Ongoing action; won't close until the CO is closed out.	HMC
5-a	Unless otherwise specified, for any changes or additions to the license or procedures resulting from this Confirmatory Order, HMC will either (1) submit to the NRC a license amendment request(s), for NRC approval, or (2) update the appropriate HMC procedure(s) after notification of the NRC. All license amendment requests resulting from this Confirmatory Order will be submitted to the NRC within 60 days of receiving the results of NRC's audit(s).	Not Complete	Per NRC Inspection Report 040-08903/2017-002; "The licensee has not submitted any license amendment requests or notified the NRC of any proposed updates to the procedures beyond the updated procedures directly required by the Order."	Submit any license amendment request(s) for NRC approval, or (2) update the appropriate HMC procedure(s) after notification of the NRC	Ongoing Action	During the 2018-01 inspection, HMC stated that an extension to the due date of the Condition might be necessary	HMC
5-b	All notifications of updates to procedures resulting from this Confirmatory Order will be made to the NRC by the end of calendar year 2018.	Not Complete		Update all procedures as a result of the Self Assessment and from the Confirmatory Order.	Ongoing Action	Will need to extend due date when we extend the due date of 6.a. They aren't tied together, but a single submittal is desired.	HMC
6-a	HMC will submit a revised groundwater CAP to the NRC by the end of calendar year 2018, including amendments to the license approved by that date.	Not Complete		Final approval of groundwater CAP.	Before or at submittal of SA to NRC	HMC made the following statement in its request for extension for the self assessment: *"The absence of a complete self-assessment does mean that, as a practical matter, the appropriate date for the CAP, now set at December 31, 2018, is uncertain; The need for and the length of any extension of the date for submittal of an updated CAP will depend on factors that will only be known by the parties as HMC nears completion of the self-assessment. The parties are not now in a position to modify the CO submittal date for that deliverable, but the NRC should be aware· now that HMC may later make a request for amendment of the December 31, 2018 CO update submittal deadline dependent on the results of the self-assessment "*	HMC

Appendix A
Crosswalk of Confirmatory Order Condition Status

Confirmatory Order (28 March 2017) Requirements				Compliance Open Items			
Confirmatory Order Condition	**Requirement**	**Status of Condition?**	**Comments**	**Corrective Action Items**	**Due Date**	**Status**	**Responsible**
6-b	The NRC and HMC will work, aggressively and in good faith, toward a goal of final approval of the groundwater CAP within a year from the date of submittal.	Not Complete			Pending	On-going action by HMC and NRC	HMC
7	HMC will conduct initial and annual refresher training for all individuals (employees and vendors, commensurate with their duties) engaged in licensed activities.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; Condition 7 of the Order is an on-going requirement and will continue to be evaluated during future inspections.	Development of an initial and annual refresher training program for all individuals engaged in Licensed activities.	Training should be completed prior to next NRC Inspection	HMC has developed an annual Regulatory Training Program. Training has been initiated and will continue. Condition 7 of the Order is an on-going requirement and will continue to be evaluated during future inspections.	HMC / Wright
7a	The initial and annual training will address awareness and understanding of regulatory and license No. SUA-1471 requirements, including but not necessarily limited to informing HMC employees of the jurisdiction of the NRC, the Environmental Protection Agency, and the New Mexico Environment Department over the Grants site. The training may be an electronic read and sign format.	Not Complete		Development of an initial and annual refresher training program for all individuals engaged in Licensed activities.	see 7	see 7	HMC
7b	HMC will maintain documentation for each training session conducted. The training documentation will include a summary of the contents of the training and the individuals in attendance. The training documentation will be maintained available for NRC inspection for 5 years after each training session.	Not Complete		Document and retain training records. Develop a records retention policy and procedure.	Ongoing Action	Condition 7 of the Order is an on-going requirement and will continue to be evaluated during future inspections.	HMC
8a	HMC will use the mass balance methodology described in its revised 2012 groundwater CAP submittal, incorporating the issues raised in the Requests for Additional Information provided by NRC, and adapting the methodology for the purpose of completing an analysis of the re-injection system's impact to the time estimate for completion of the groundwater CAP. The analysis will be completed within 120 days of issuance of this Confirmatory Order.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee submitted the impact analysis for the re-injection system by letter dated July 26, 2017, (ADAMS Accession Package No. ML17212A010).	Complete and submit an analysis of the re-injection system's impact to the time estimate for completion of the groundwater CAP.	Action Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee submitted the impact analysis for the re-injection system by letter dated July 26, 2017, (ADAMS Accession Package No. ML17212A010). Licensee action complete, item won't close until NRC audit per Condition 8.c is completed.	HMC/Hydro
8b	No less than 30 days prior to its finalization of the re-injection analysis, HMC will discuss with NRC the methodology, data, and analysis. HMC will provide to NRC all discussion material at least 10 days prior to the discussion.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The NRC is currently performing the audit of the licensee's submitted analysis and the NRC will provide the audit findings to the licensee once they are completed.	HMC will discuss with NRC the methodology, data, and analysis.	Action Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee submitted the impact analysis for the re-injection system by letter dated July 26, 2017, (ADAMS Accession Package No. ML17212A010). Licensee action complete, item won't close until NRC audit per Condition 8.c is completed.	HMC
8c	NRC will per1orm an audit of the analysis, and provide in writing NRC audit results, including any recommended changes. HMC will incorporate NRC audit results in the actions described in Condition 5 of this section.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The NRC is currently performing the audit of the licensee's submitted analysis and NRC will provide the audit findings to the licensee once they are completed. Condition 8 of the Order remains open and can be reviewed once the licensee incorporates NRC's comments into the analysis.	NRC audit of above analysis.	Pending	Per NRC Inspection Report 040-08903/2017-002; The NRC is currently performing the audit of the licensee's submitted analysis and NRC will provide the audit findings to the licensee once they are completed. Condition 8 of the Order remains open and can be reviewed once the licensee incorporates NRC's comments into the analysis. NRC PM has this for his review and currently requires no further documents from HMC.	HMC
9a	As soon as practicable, but not to exceed 30 days from issuance of this Confirmatory Order, HMC will adjust operations to better ensure compliance with the Ground Water Protection Standards (GWPS) in license Condition 35B as required by License Condition 35C (as amended by this Confirmatory Order) and described in HMC's submittal dated January 15, 1998 and the NRC's approval dated March 5, 1998.	Satisfied	Per NRC Inspection Report 040-08903/2017-002; The requirement under Condition 9 of the Order to perform adjustments to the operations of the RO plant and evaluate the procedure required by LC 23 is considered to be satisfied.				
9b	HMC will evaluate the procedure required by license Condition 23 to ensure that the process is adequate to reduce constituent concentrations to values below the GWPS listed in License Condition 35B before discharge.	Satisfied	Per NRC Inspection Report 040-08903/2017-002; The requirement under Condition 9 of the Order to perform adjustments to the operations of the RO plant and evaluate the procedure required by LC 23 is considered to be satisfied.				
10-a	HMC will use the methodology described in NUREG-1620 to analyze the impact of exceedances documented in the NRC's October 4, 2016 letter to HMC. The analysis will be completed within 120 days of issuance of this Confirmatory Order.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The NRC acknowledged receipt of the impact analyses for the exceedances at the RO plant by letter dated August 1, 2017 (ADAMS Accession No. ML17213A29).	Submit exceedance analysis	Action Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee submitted the impact analysis for the re-injection system by letter dated July 26, 2017, (ADAMS Accession Package No. ML17212A010). Licensee action complete, item won't close until NRC audit per Condition 10.c is completed.	HMC
10-b	No less than 30 days prior to its finalization of the impact of exceedances analysis, HMC will discuss with NRC the methodology, data, and analysis. HMC will provide to NRC all discussion material at least 10 days prior to the discussion.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee and the NRC discussed the methodology, data, and analysis with the NRC during a teleconference on June 26, 2017 and during a follow-on meeting on June 27, 2017. Notes summarizing the discussions during the meetings on June 26 and 27, 2017, as well as the licensee's presentation are publicly available (ADAMS Accession No. ML17352B067).	HMC will discuss with NRC the methodology, data, and analysis.	Action Complete	HMC and the NRC discussed the methodology, data, and analysis with the NRC during a teleconference on June 26, 2017 and during a follow-on meeting on June 27, 2017. Notes summarizing the discussions during the meetings on June 26 and 27, 2017, as well as the licensee's presentation are publicly available (ADAMS Accession No. ML17352B067). Licensee action complete, item won't close until NRC audit per Condition 10.c is completed.	HMC
10-c	The NRC will perform an audit of the analysis and provide in writing, the NRC audit results, including any recommended changes. HMC will incorporate NRC audit results in the actions described in Condition 5 of this section.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The NRC is currently performing the audit of the analysis and will provide the audit results in writing once completed. Condition 10 of the Order remains open and can be reviewed once the licensee incorporates NRC's audit results into the analysis.	NRC audit of analysis.	Pending	The NRC acknowledged receipt of the impact analyses for the exceedances at the RO plant by letter dated August 1, 2017 (ADAMS Accession No. ML17213A29). The NRC is currently performing the audit of the analysis and will provide the audit results in writing once completed. NRC PM has this for his review and currently requires no further documents from HMC.	HMC
10-d	In the event of a future non-compliance related to the GWPS, HMC will perform a similar assessment of the impacts of the non-compliance. HMC will report the incident to the NRC in accordance with License Condition 40 within 30 days of receipt of initial and confirmatory laboratory results.	Not Complete	On-going commitment	HMC to perform a similar assessment of the impacts of any future non-compliances.	Action Complete	Exceedance for U in April SP2 composite sample has triggered this on-going Condition. NMED/NRC notifications completed via letter on 5/23/2018, and impact assessment submitted to NRC/NMED per the Condition on 6/4/2018. CO Condition will remain open until closure of the CO.	HMC/Hydro-Engineering

Appendix A
Crosswalk of Confirmatory Order Condition Status

Confirmatory Order (28 March 2017) Requirements				Compliance Open Items			
Confirmatory Order Condition	Requirement	Status of Condition?	Comments	Corrective Action Items	Due Date	Status	Responsible
11	Condition 35C of License No. SUA-1471 is amended by this Confirmatory Order to read as follows: "implement the corrective action program described in the September 15, 1989 submittal, as modified by the reverse osmosis system described in the January 15, 1998 submittal, excluding all sampling and reporting requirements for Sample Point 1, with the objective of achieving the concentrations of all constituents listed in License Condition 358. Composite samples from Sample Point 2 (SP2) will be taken monthly and analyzed for the constituents listed in License Condition 358; the results of these analyses will be reported in the semi-annual and annual reports required by License Conditions 15 and 42."	Satisfied	Per NRC Inspection Report 040-08903/2017-002; Condition 11 of the Order directly modified LC 35C of the licensee's license when the Order was issued on March 28, 2017. Condition 11 of the Order is considered to be satisfied.				
12-a	HMC will develop written procedures to ensure that HMC will sample all required composite samples from Sample Point 2 (SP2) monthly and will report the results of those sample results in the semi-annual and annual reports required by License Conditions 15 and 42. The procedure will include a requirement that if sampling is not performed, a justification will be provided in the semi-annual report required by License Condition 15 for that sampling period, e.g., "inadequate volume of water collected per the appropriate sampling procedure due to the RO plant being inoperable for 25 out of 30 days during that sampling period." For clarity, this reporting requirement does not apply to additional samples taken for operational purposes.	Satisfied	Per NRC Inspection Report 040-08903/2018-001; Written procedures for monthly sampling of Sample Point 2 were submitted to the NRC by letter dated July 26, 2017 (ADAMS Accession No. ML17212A025). The inspectors reviewed the revised procedures during the inspection and determined that they were adequate and will ensure that monthly composite samples are obtained from Sample Point 2. Further, the inspectors noted that the results of the monthly samples were reported in the semi-annual report dated February 22, 2018 (ADAMS Accession No. ML18066A088). Condition 12 of the Order is considered to be satisfied.				
12-b	For any report submitted to NRC, HMC will clearly identify all values at SP2 that exceed GWPS or regulatory or license limits for the COCs identified in License Condition 35B and corrective actions taken, ii any, as a result of the exceedances. HMC will submit these procedures to NRC within 120 days of issuance of this Confirmatory Order.	Satisfied	Per NRC Inspection Report 040-08903/2018-001; Written procedures for monthly sampling of Sample Point 2 were submitted to the NRC by letter dated July 26, 2017 (ADAMS Accession No. ML17212A025). The inspectors reviewed the revised procedures during the inspection and determined that they were adequate and will ensure that monthly composite samples are obtained from Sample Point 2. Further, the inspectors noted that the results of the monthly samples were reported in the semi-annual report dated February 22, 2018 (ADAMS Accession No. ML18066A088). Condition 12 of the Order is considered to be satisfied.				
13	Condition 15 of License No. SUA-1471 is amended by this Confirmatory Order to read as follows: "The results of all effluent and environmental monitoring required by this license and regulation shall be reported semi-annually, by March 31 and September 30. All groundwater monitoring data shall be reported per the requirements in License Condition 35."	Satisfied	Per NRC Inspection Report 040-08903/2017-002; Condition 13 of the Order directly modified LC 15 of the licensee's license when the Order was issued on March 28, 2017. The modification provides clarifying language for when the semi-annual effluent and environmental monitoring reports are due. Condition 13 of the Order is considered to be satisfied.				
14-a	HMC will identify sources of supply water, soil and groundwater data, and reports, and will use those data to develop a land application assessment of any impacts due to the use of the irrigation water containing byproduct material to past, current, or foreseeable future uses of the land application areas in Township 12 North, Range 1 O West, Sections 28 (approximately 100 acres), 33 (approximately 150 acres and approximately 24 acres), and 34 (approximately 120 acres).	Not Complete	see 14-f	Submittal of Land Application Assessment to NRC	see 14-f	see 14-f	see 14-f
14-b	The land application assessment will establish background concentrations, remedial action levels (radiological dose and non-radiological risk), and current concentrations of COCs in its license at all areas used for land application.	Not Complete	see 14-f	Submittal of Land Application Assessment to NRC	see 14-f	see 14-f	see 14-f
14-c	The land application assessment will also identify and assess impacts from soil pore water data at the land application areas.	Not Complete	see 14-f	Submittal of Land Application Assessment to NRC	see 14-f	see 14-f	see 14-f
14-d	HMC's land application assessment will be consistent with the requirements of 10 CFR 20.2002 and in accordance with Appendix F1 .4 of NUREG-1620 to demonstrate that the discharge of byproduct material containing both radiological and non-radiological constituents did not impact and will not impact members of the public or the environment.	Not Complete	see 14-f	Submittal of Land Application Assessment to NRC	see 14-f	see 14-f	see 14-f
14-e	In addition, HMC will take immediate action to ensure that the land application areas are not being used to produce crops for human consumption.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; By memorandum dated June 16, 2017, (ADAMS Accession No. ML17328A507), the licensee provided verification that they are not using the former irrigation areas to produce crops for human consumption.	Submittal of Land Application Assessment to NRC	see 14-f	see 14-f	see 14-f
14-f	The land application assessment will be submitted for NRC review and approval within 180 days of issuance of this Confirmatory Order.	Not Complete	Per NRC Inspection Report 040-08903/2018-001; The licensee submitted the land application assessment by letter dated September 25, 2017, (ADAMS Accession No. ML17270A066). A proposed final status survey plan for release of the former land application areas was submitted by letter dated November 14, 2017, (ADAMS Accession No. ML17340A406). The data obtained for the final status survey is intended to augment the existing soil data within the Land Application Impact Assessment report submitted on September 25, 2017. NRC is currently reviewing the September 25, 2017, land application assessment report and is awaiting the results of the additional data obtained for the final status survey report. Once the final status survey data is received, the NRC will perform a confirmatory survey at the former land application areas to support the findings in the NRC staff Safety Evaluation Report.	Submittal of Land Application Assessment to NRC	Pending	Submitted to NRC on Sept. 12th for initial feedback. Revised per NRC feedback. Final version submitted to the NRC on Sept. 25th. Need to mobilize a team for additional soil sampling. Conference call with NRC to discuss status survey plan on Oct. 24th. Tom verified no crops grown on land app areas and documentation prepared for the NRC. ERG submitted "Final Status Survey Plan" for land application areas to the NRC on Nov. 15th. Tom directed ERG to initiate Status Survey of former land application areas. Status Survey work initiated by ERG on Dec. 4th. Work half-way done on Dec. 18th, soil sampling all done, 2 pivot areas scanned, 2 flood areas to be scanned after first of year. Soil sampling and gamma scanning completed. Final Status Surveys completed, development of FSS Report in progress. One small area of elevated gamma radiation and Ra-226 concentrations in surface soil identified on the north edge of the Section 28 Pivot land application area. Cleanup of this "hotspot" has been completed, and confirmatory gamma scanning and soil sampling was performed to verify successful cleanup and allow completion of the FSS Report. The additional sampling will require up to 6 weeks for analytical results to become available for inclusion in the report. NRC (Evans) on site week of 8/27/2018 for NRC confirmatory surveys.	Hydro-Engineering/ERG

Appendix A
Crosswalk of Confirmatory Order Condition Status

Confirmatory Order (28 March 2017) Requirements				Compliance Open Items			
Confirmatory Order Condition	**Requirement**	**Status of Condition?**	**Comments**	**Corrective Action Items**	**Due Date**	**Status**	**Responsible**
15-a	If the results of HMC's analysis discussed in Condition 14 of this section indicates that radiological doses and non-radiological risks are in excess of the NRC-approved remedial action levels, HMC will propose appropriate measures to control both use and access to the impacted areas, a corrective action plan, if necessary, to achieve the NRC-approved remedial action levels, and final status survey plans to demonstrate that the radiological doses and non-radiological risks are below NRC-approved remedial action levels.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; Condition 15 of the Order remains open and can be reviewed once the NRC completes the Safety Evaluation Report for the land application assessment required by Condition 14 of the Order.	Submit Corrective Action Plan for Land Application Areas, if needed	Within 60 days of NRC approval of Land App Assess	Condition will remain open until NRC approval of Land Application Assessment	HMC/Hydro-Engineering
15-b	If corrective actions are needed, HMC will submit corrective actions (that include completion timeframes), for NRC approval, within 60 days of NRC's approval of HMC's land application assessment.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; Condition 15 of the Order remains open and can be reviewed once the NRC completes the Safety Evaluation Report for the land application assessment required by Condition 14 of the Order.	Develop a land application area corrective actions, if necessary.	Pending	The licensee submitted the land application assessment by letter dated September 25, 2017, (ADAMS Accession No. ML17270A066). A proposed final status survey plan for release of the former land application areas was submitted by letter dated November 14, 2017, (ADAMS Accession No. ML17340A406). The data obtained for the final status survey is intended to augment the existing soil data within the Land Application Impact Assessment report submitted on September 25, 2017.	HMC
16	HMC will provide to the NRC an integrated table that sets forth all actions taken pursuant to this Confirmatory Order. An updated integrated table will be provided to the NRC semi-annually, until all license and procedure changes under this Confirmatory Order are completed.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee submitted the integrated table by letter dated September 27, 2017, (ADAMS Accession No. ML17272A137). Condition 16 of the Order will remain open until all license and procedure changes under the Order are completed.	Submit Integrated Table of Confirmatory Order Actions to the NRC.	9/27/2018	Last submittal on 3/28/2018	HMC/ENERCON

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1904.0 - Purpose	The purpose of this rule (part 1904) is to require employers to record and report work-related fatalities, injuries, and illnesses. Note to § 1904.0: Recording or reporting a work-related injury, illness, or fatality does not mean that the employer or employee was at fault, that an OSHA rule has been violated, or that the employee is eligible for workers' compensation or other benefits. Note to Subpart B: All employers covered by the Occupational Safety and Health Act (OSH Act) are covered by these Part 1904 regulations. However, most employers do not have to keep OSHA injury and illness records unless OSHA or the Bureau of Labor Statistics (BLS) informs them in writing that they must keep records. For example, employers with 10 or fewer employees and business establishments in certain industry classifications are partially exempt from keeping OSHA injury and illness records.							
	1904.4 - Recording criteria	**1904.4(a)** ***Basic requirement*** . Each employer required by this part to keep records of fatalities, injuries, and illnesses must record each fatality, injury and illness that: **1904.4(a)(1)** Is work-related; and **1904.4(a)(2)** Is a new case; and **1904.4(a)(3)** Meets one or more of the general recording criteria of §1904.7 or the application to specific cases of §§1904.8 through 1904.12. **1904.4(b)** ***Implementation—*** **1904.4(b)(1)** ***What sections of this rule describe recording criteria for recording work-related injuries and illnesses?*** The table below indicates which sections of the rule address each topic. **1904.4(b)(1)(I)** Determination of work-relatedness. See §1904.5. **1904.4(b)(1)(II)** Determination of a new case. See §1904.6. **1904.4(b)(1)(III)** General recording criteria. See §1904.7. **1904.4(b)(1)(IV)** Additional criteria. (Needlestick and sharps injury cases, tuberculosis cases, hearing loss cases, medical removal cases, and musculoskeletal disorder cases). See §§1904.8 through 1904.12. **1904.4(b(2))** How do I decide whether a particular injury or illness is recordable? The decision tree for recording work-related injuries and illnesses below shows the steps involved in making this determination.	Partial	Policy states immediate reporting to management for all work-related accidents, however policy is too brief/high-level and is silent on many individual provisions of the regulation.	X	X			
	1904.5 - Determination of work-relatedness.	**1904.5(a)** ***Basic requirement.*** You must consider an injury or illness to be work-related if an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment, unless an exception in §1904.5(b)(2) specifically applies **1904.5(b)** ***Implementation.*** **1904.5(b)(1)** What is the "work environment"? OSHA defines the work environment as "the establishment and other locations where one or more employees are working or are present as a condition of their employment. The work environment includes not only physical locations, but also the equipment or materials used by the employee during the course of his or her work." **1904.5(b)(2)** ***Are there situations where an injury or illness occurs in the work environment and is not considered work-related?*** Yes, an injury or illness occurring in the work environment that falls under one of the following exceptions is not work-related, and therefore is not recordable. **1904.5(b)(7)** How do I decide if a case is work-related when the employee is working at home? Injuries and illnesses that occur while an employee is working at home, including work in a home office, will be considered work-related if the injury or illness occurs while the employee is performing work for pay or compensation in the home, and the injury or illness is directly related to the performance of work rather than to the general home environment or setting. For example, if an employee drops a box of work documents and injures his or her foot, the case is considered work-related. If an employee's fingernail is punctured by a needle from a sewing machine used to perform garment work at home, becomes infected and requires medical treatment, the injury is considered work-related. If an employee is injured because he or she trips on the family dog while rushing to answer a work phone call, the case is not considered work-related. If an employee working at home is electrocuted because of faulty home wiring, the injury is not considered work-related.	Partial	Policy states immediate reporting to management for all work-related accidents, however policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1904.6 - Determination of new cases.	**1904.6(a)** ***Basic requirement.*** You must consider an injury or illness to be a "new case" if: **1904.6(a)(1)** The employee has not previously experienced a recorded injury or illness of the same type that affects the same part of the body, or **1904.6(a)(2)** The employee previously experienced a recorded injury or illness of the same type that affected the same part of the body but had recovered completely (all signs and symptoms had disappeared) from the previous injury or illness and an event or exposure in the work environment caused the signs or symptoms to reappear. **1904.6(b)** ***Implementation.*** **1904.6(b)(1)** ***When an employee experiences the signs or symptoms of a chronic work-related illness, do I need to consider each recurrence of signs or symptoms to be a new case?*** No, for occupational illnesses where the signs or symptoms may recur or continue in the absence of an exposure in the workplace, the case must only be recorded once. Examples may include occupational cancer, asbestosis, byssinosis and silicosis. **1904.6(b)(2)** ***When an employee experiences the signs or symptoms of an injury or illness as a result of an event or exposure in the workplace, such as an episode of occupational asthma, must I treat the episode as a new case?*** Yes, because the episode or recurrence was caused by an event or exposure in the workplace, the incident must be treated as a new case. **1904.6(b)(3)** ***May I rely on a physician or other licensed health care professional to determine whether a case is a new case or a recurrence of an old case?*** You are not required to seek the advice of a physician or other licensed health care professional. However, if you do seek such advice, you must follow the physician or other licensed health care professional's recommendation about whether the case is a new case or a recurrence. If you receive recommendations from two or more physicians or other licensed health care professionals, you must make a decision as to which recommendation is the most authoritative (best documented, best reasoned, or most authoritative), and record the case based upon that recommendation.	Partial	Policy states immediate reporting to management for all work-related accidents, however policy is too brief/high-level and is silent on many individual provisions of the regulation.	X	X		X	
	1904.7 - General recording criteria.	**1904.7(a)** ***Basic requirement.*** You must consider an injury or illness to meet the general recording criteria, and therefore to be recordable, if it results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. You must also consider a case to meet the general recording criteria if it involves a significant injury or illness diagnosed by a physician or other licensed health care professional, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness. **1904.7(b)** ***Implementation.*** **1904.7(b)(1)** ***How do I decide if a case meets one or more of the general recording criteria?*** A work-related injury or illness must be recorded if it results in one or more of the following: **1904.7(b)(1)(i)** Death. See § 1904.7(b)(2). **1904.7(b)(1)(ii)** Days away from work. See § 1904.7(b)(3). **1904.7(b)(1)(iii)** Restricted work or transfer to another job. See § 1904.7(b)(4). **1904.7(b)(1)(iv)** Medical treatment beyond first aid. See § 1904.7(b)(5). **1904.7(b)(1)(v)** Loss of consciousness. See § 1904.7(b)(6). **1904.7(b)(1)(vi)** A significant injury or illness diagnosed by a physician or other licensed health care professional. See § 1904.7(b)(7). **1904.7(b)(2)** ***How do I record a work-related injury or illness that results in the employee's death?*** You must record an injury or illness that results in death by entering a check mark on the OSHA 300 Log in the space for cases resulting in death. You must also report any work-related fatality to OSHA within eight (8) hours, as required by § 1904.39. **1904.7(b)(3)** ***How do I record a work-related injury or illness that results in days away from work?*** When an injury or illness involves one or more days away from work, you must record the injury or illness on the OSHA 300 Log with a check mark in the space for cases involving days away and an entry of the number of calendar days away from work in the number of days column. If the employee is out for an extended period of time, you must enter an estimate of the days that the employee will be away, and update the day count when the actual number of days is known. **1904.7(b)(3)(i)** ***Do I count the day on which the injury occurred or the illness began?*** No, you begin counting days away on the day after the injury occurred or the illness began. **1904.7(b)(3)(ii)** ***How do I record an injury or illness when a physician or other licensed health care professional recommends that the worker stay at home but the employee comes to work anyway?*** You must record these injuries and illnesses on the OSHA 300 Log using the check box for cases with days away from work and enter the number of calendar days away recommended by the physician or other licensed health care professional. If a physician or other licensed health care professional recommends days away, you should encourage your employee to follow that recommendation. However, the days away must be recorded whether the injured or ill employee follows the physician or licensed health care professional's recommendation or not. If you receive recommendations from two or more physicians or other licensed health care professionals, you may make a decision as to which recommendation is the most authoritative, and record the case based upon that recommendation. **1904.7(b)(3)(iii)** ***How do I handle a case when a physician or other licensed health care professional recommends that the worker return to work but the employee stays at home anyway?*** In this situation, you must end the count of days away from work on the date the physician or other licensed health care professional recommends that the employee return to work. **1904.7(b)(3)(iv)** ***How do I count weekends, holidays, or other days the employee would not have worked anyway?*** You must count the number of calendar days the employee was unable to work as a result of the injury or illness, regardless of whether or not the employee was scheduled to work on those day(s). Weekend days, holidays, vacation days or other days off are included in the total number of days recorded if the employee would not have been able to work on those days because of a work-related injury or illness. **1904.7(b)(3)(v)** ***How do I record a case in which a worker is injured or becomes ill on a Friday and reports to work on a Monday, and was not scheduled to work on the weekend?*** You need to record this case only if you receive information from a physician or other licensed health care professional indicating that the employee should not have worked, or should have performed only restricted work, during the weekend. If so, you must record the injury or illness as a case with days away from work or restricted work, and enter the day counts, as appropriate. **1904.7(b)(3)(vi)** ***How do I record a case in which a worker is injured or becomes ill on the day before scheduled time off such as a holiday, a planned vacation, or a temporary plant closing?*** You need to record a case of this type only if you receive information from a physician or other licensed health care professional indicating that the employee should not have worked, or should have performed only restricted work, during the scheduled time off. If so, you must record the injury or illness as a case with days away from work or restricted work, and enter the day counts, as appropriate. **1904.7(b)(3)(vii)** ***Is there a limit to the number of days away from work I must count?*** Yes, you may "cap" the total days away at 180 calendar days. You are not required to keep track of the number of calendar days away from work if the injury or illness resulted in more than 180 calendar days away from work and/or days of job transfer or restriction. In such a case, entering 180 in the total days away column will be considered adequate. **1904.7(b)(3)(viii)** ***May I stop counting days if an employee who is away from work because of an injury or illness retires or leaves my company?*** Yes, if the employee leaves your company for some reason unrelated to the injury or illness, such as retirement, a plant closing, or to take another job, you may stop counting days away from work or days of restriction/job transfer. If the employee leaves your company because of the injury or illness, you must estimate the total number of days away or days of restriction/job transfer and enter the day count on the 300 Log. **1904.7(b)(3)(ix)** ***If a case occurs in one year but results in days away during the next calendar year, do I record the case in both years?*** No, you only record the injury or illness once. You must enter the number of calendar days away for the injury or illness on the OSHA 300 Log for the year in which the injury or illness occurred. If the employee is still away from work because of the injury or illness when you prepare the annual summary, estimate the total number of calendar days you expect the employee to be away from work, use this number to calculate the total for the annual summary, and then update the initial log entry later when the day count is known or reaches the 180-day cap. **1904.7(b)(4)** ***How do I record a work-related injury or illness that results in restricted work or job transfer?*** When an injury or illness involves restricted work or job transfer but does not involve death or days away from work, you must record the injury or illness on the OSHA 300 Log by placing a check mark in the space for job transfer or restriction and an entry of the number of restricted or transferred days in the restricted workdays column. **1904.7(b)(4)(i)** ***How do I decide if the injury or illness resulted in restricted work?*** Restricted work occurs when, as the result of a work-related injury or illness: **1904.7(b)(4)(i)(A)** You keep the employee from performing one or more of the routine functions of his or her job, or from working the full workday that he or she would otherwise have been scheduled to work; or **1904.7(b)(4)(i)(B)** A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of his or her job, or not work the full workday that he or she would otherwise have been scheduled to work. **1904.7(b)(4)(ii)** ***What is meant by "routine functions"?*** For recordkeeping purposes, an employee's routine functions are those work activities the employee regularly performs at least once per week. **1904.7(b)(4)(iii)** ***Do I have to record restricted work or job transfer if it applies only to the day on which the injury occurred or the illness began?*** No, you do not have to record restricted work or job transfers if you, or the physician or other licensed health care professional, impose the restriction or transfer only for the day on which the injury occurred or the illness began. **1904.7(b)(4)(iv)** ***If you or a physician or other licensed health care professional recommends a work restriction, is the injury or illness automatically recordable as a "restricted work" case?*** No, a recommended work restriction is recordable only if it affects one or more of the employee's routine job functions. To determine whether this is the case, you must evaluate the restriction in light of the routine functions of the injured or ill employee's job. If the restriction from you or the physician or other licensed health care professional keeps the employee from performing one or more of his or her routine job functions, or from working the full workday the injured or ill employee would otherwise have worked, the employee's work has been restricted and you must record the case. **1904.7(b)(4)(v)** ***How do I record a case where the worker works only for a partial work shift because of a work-related injury or illness?*** A partial day of work is recorded as a day of job transfer or restriction for recordkeeping purposes, except for the day on which the injury occurred or the illness began. **1904.7(b)(4)(vi)** ***If the injured or ill worker produces fewer goods or services than he or she would have produced prior to the injury or illness but otherwise performs all of the routine functions of his or her work, is the case considered a restricted work case?*** No, the case is considered restricted work only if the worker does not perform all of the routine functions of his or her job or does not work the full shift that he or she would otherwise have worked. **1904.7(b)(4)(vii)** ***How do I handle vague restrictions from a physician or other licensed health care professional, such as that the employee engage only in "light duty" or "take it easy for a week"?*** If you are not clear about the physician or other licensed health care professional's recommendation, you may ask that person whether the employee can do all of his or her routine job functions and work all of his or her normally assigned work shift. If the	Partial	Policy states immediate reporting to management for all work-related accidents, however policy is too brief/high-level and is silent on many individual provisions of the regulation.		X		X	

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
		answer to both of these questions is "Yes," then the case does not involve a work restriction and does not have to be recorded as such. If the answer to one or both of these questions is "No," the case involves restricted work and must be recorded as a restricted work case. If you are unable to obtain this additional information from the physician or other licensed health care professional who recommended the restriction, record the injury or illness as a case involving restricted work. **1904.7(b)(4)(viii)** ***What do I do if a physician or other licensed health care professional recommends a job restriction meeting OSHA's definition, but the employee does all of his or her routine job functions anyway?*** You must record the injury or illness on the OSHA 300 Log as a restricted work case. If a physician or other licensed health care professional recommends a job restriction, you should ensure that the employee complies with that restriction. If you receive recommendations from two or more physicians or other licensed health care professionals, you may make a decision as to which recommendation is the most authoritative, and record the case based upon that recommendation. **1904.7(b)(4)(ix)** ***How do I decide if an injury or illness involved a transfer to another job?*** If you assign an injured or ill employee to a job other than his or her regular job for part of the day, the case involves transfer to another job. Note: This does not include the day on which the injury or illness occurred. **1904.7(b)(4)(x)** ***Are transfers to another job recorded in the same way as restricted work cases?*** Yes, both job transfer and restricted work cases are recorded in the same box on the OSHA 300 Log. For example, if you assign, or a physician or other licensed health care professional recommends that you assign, an injured or ill worker to his or her routine job duties for part of the day and to another job for the rest of the day, the injury or illness involves a job transfer. You must record an injury or illness that involves a job transfer by placing a check in the box for job transfer. **1904.7(b)(4)(xi)** ***How do I count days of job transfer or restriction?*** You count days of job transfer or restriction in the same way you count days away from work, using § 1904.7(b)(3)(i) to (viii), above. The only difference is that, if you permanently assign the injured or ill employee to a job that has been modified or permanently changed in a manner that eliminates the routine functions the employee was restricted from performing, you may stop the day count when the modification or change is made permanent. You must count at least one day of restricted work or job transfer for such cases. **1904.7(b)(5)** ***How do I record an injury or illness that involves medical treatment beyond first aid?*** If a work-related injury or illness results in medical treatment beyond first aid, you must record it on the OSHA 300 Log. If the injury or illness did not involve death, one or more days away from work, one or more days of restricted work, or one or more days of job transfer, you enter a check mark in the box for cases where the employee received medical treatment but remained at work and was not transferred or restricted. **1904.7(b)(5)(i)** ***What is the definition of medical treatment?*** "Medical treatment" means the management and care of a patient to combat disease or disorder. For the purposes of Part 1904, medical treatment does not include: **1904.7(b)(5)(i)(A)** Visits to a physician or other licensed health care professional solely for observation or counseling; **1904.7(b)(5)(i)(B)** The conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (***e.g.***, eye drops to dilate pupils); or **1904.7(b)(5)(i)(C)** "First aid" as defined in paragraph (b)(5)(ii) of this section. **1904.7(b)(5)(ii)** ***What is "first aid"?*** For the purposes of Part 1904, "first aid" means the following: **1904.7(b)(5)(ii)(A)** Using a non-prescription medication at nonprescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes); **1904.7(b)(5)(ii)(B)** Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment); **1904.7(b)(5)(ii)(C)** Cleaning, flushing or soaking wounds on the surface of the skin; **1904.7(b)(5)(ii)(D)** Using wound coverings such as bandages, Band-Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, etc., are considered medical treatment); **1904.7(b)(5)(ii)(E)** Using hot or cold therapy; **1904.7(b)(5)(ii)(F)** Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes); **1904.7(b)(5)(ii)(G)** Using temporary immobilization devices while transporting an accident victim (***e.g.***, splints, slings, neck collars, back boards, etc.). **1904.7(b)(5)(ii)(H)** Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister; **1904.7(b)(5)(ii)(I)** Using eye patches; **1904.7(b)(5)(ii)(J)** Removing foreign bodies from the eye using only irrigation or a cotton swab; **1904.7(b)(5)(ii)(K)** Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means; **1904.7(b)(5)(ii)(L)** Using finger guards; **1904.7(b)(5)(ii)(M)** Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); or **1904.7(b)(5)(ii)(N)** Drinking fluids for relief of heat stress. **1904.7(b)(5)(iii)** ***Are any other procedures included in first aid?*** No, this is a complete list of all treatments considered first aid for Part 1904 purposes. **1904.7(b)(5)(iv)** ***Does the professional status of the person providing the treatment have any effect on what is considered first aid or medical treatment?*** No, OSHA considers the treatments listed in § 1904.7(b)(5)(ii) of this Part to be first aid regardless of the professional status of the person providing the treatment. Even when these treatments are provided by a physician or other licensed health care professional, they are considered first aid for the purposes of Part 1904. Similarly, OSHA considers treatment beyond first aid to be medical treatment even when it is provided by someone other than a physician or other licensed health care professional. **1904.7(b)(5)(v)** ***What if a physician or other licensed health care professional recommends medical treatment but the employee does not follow the recommendation?*** If a physician or other licensed health care professional recommends medical treatment, you should encourage the injured or ill employee to follow that recommendation. However, you must record the case even if the injured or ill employee does not follow the physician or other licensed health care professional's recommendation. **1904.7(b)(6)** ***Is every work-related injury or illness case involving a loss of consciousness recordable?*** Yes, you must record a work-related injury or illness if the worker becomes unconscious, regardless of the length of time the employee remains unconscious. **1904.7(b)(7)** ***What is a "significant" diagnosed injury or illness that is recordable under the general criteria even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness?*** Work-related cases involving cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum must always be recorded under the general criteria at the time of diagnosis by a physician or other licensed health care professional. **Note to § 1904.7:** OSHA believes that most significant injuries and illnesses will result in one of the criteria listed in § 1904.7(a): death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness. However, there are some significant injuries, such as a punctured eardrum or a fractured toe or rib, for which neither medical treatment nor work restrictions may be recommended. In addition, there are some significant progressive diseases, such as byssinosis, silicosis, and some types of cancer, for which medical treatment or work restrictions may not be recommended at the time of diagnosis but are likely to be recommended as the disease progresses. OSHA believes that cancer, chronic irreversible diseases, fractured or cracked bones, and punctured eardrums are generally considered significant injuries and illnesses, and must be recorded at the initial diagnosis even if medical treatment or work restrictions are not recommended, or are postponed, in a particular case.								
	1904.8 - Recording criteria for needlestick and sharps injuries.	**1904.8(a)** ***Basic requirement.*** You must record all work-related needlestick injuries and cuts from sharp objects that are contaminated with another person's blood or other potentially infectious material (as defined by 29 CFR 1910.1030). You must enter the case on the OSHA 300 Log as an injury. To protect the employee's privacy, you may not enter the employee's name on the OSHA 300 Log (see the requirements for privacy cases in paragraphs 1904.29(b)(6) through 1904.29(b)(9)). **1904.8(b)** ***Implementation.*** **1904.8(b)(1)** ***What does "other potentially infectious material" mean?*** The term "other potentially infectious materials" is defined in the OSHA Bloodborne Pathogens standard at § 1910.1030(b). These materials include: **1904.8(b)(1)(i)** Human bodily fluids, tissues and organs, and **1904.8(b)(1)(ii)** Other materials infected with the HIV or hepatitis B (HBV) virus such as laboratory cultures or tissues from experimental animals. **1904.8(b)(2)** ***Does this mean that I must record all cuts, lacerations, punctures, and scratches?*** No, you need to record cuts, lacerations, punctures, and scratches only if they are work-related and involve contamination with another person's blood or other potentially infectious material. If the cut, laceration, or scratch involves a clean object, or a contaminant other than blood or other potentially infectious material, you need to record the case only if it meets one or more of the recording criteria in § 1904.7. **1904.8(b)(3)** ***If I record an injury and the employee is later diagnosed with an infectious bloodborne disease, do I need to update the OSHA 300 Log?*** Yes, you must update the classification of the case on the OSHA 300 Log if the case results in death, days away from work, restricted work, or job transfer. You must also update the description to identify the infectious disease and change the classification of the case from an injury to an illness. **1904.8(b)(4)** ***What if one of my employees is splashed or exposed to blood or other potentially infectious material without being cut or scratched?*** Do I need to record this incident? You need to record such an incident on the OSHA 300 Log as an illness if: **1904.8(b)(4)(i)** It results in the diagnosis of a bloodborne illness, such as HIV, hepatitis B, or hepatitis C; or **1904.8(b)(4)(ii)** It meets one or more of the recording criteria in § 1904.7.	Partial	Policy requires the use of Universal Precautions when exposed to bloodborne pathogens, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including needlestick/sharps injuries and recordkeeping of incidents.		X		X	
	1904.9 - Recording criteria for cases involving medical removal under OSHA standards.	**1904.9(a)** ***Basic requirement.*** If an employee is medically removed under the medical surveillance requirements of an OSHA standard, you must record the case on the OSHA 300 Log. **1904.9(b)** ***Implementation.*** **1904.9(b)(1)** ***How do I classify medical removal cases on the OSHA 300 Log?*** You must enter each medical removal case on the OSHA 300 Log as either a case involving days away from work or a case involving restricted work activity, depending on how you decide to comply with the medical removal requirement. If the medical removal is the result of a chemical exposure, you must enter the case on the OSHA 300 Log by checking the "poisoning" column. **1904.9(b)(2)** ***Do all of OSHA's standards have medical removal provisions?*** No, some OSHA standards, such as the standards covering bloodborne pathogens and noise, do not have medical removal provisions. Many OSHA standards that cover specific chemical substances have medical removal provisions. These standards include, but are not limited to, lead, cadmium, methylene chloride, formaldehyde, and benzene. **1904.9(b)(3)** ***Do I have to record a case where I voluntarily removed the employee from exposure before the medical removal criteria in an OSHA standard are met?*** No, if the case involves voluntary medical removal before the medical removal levels required by an OSHA standard, you do not need to record the case on the OSHA 300 Log.	Partial	Policy is too brief/high-level and is silent on many individual provisions of the regulation.		X		X	
	1904.29 - Forms.	**1904.29(a)** ***Basic requirement.*** You must use OSHA 300, 300-A, and 301 forms, or equivalent forms, for recordable injuries and illnesses. The OSHA 300 form is called the Log of Work-Related Injuries and Illnesses, the 300-A is the Summary of Work-Related Injuries and Illnesses, and the OSHA 301 form is called the Injury and Illness Incident Report. **1904.29(b)** ***Implementation*** — **1904.29(b)(1)** ***What do I need to do to complete the OSHA 300 Log?*** You must enter information about your business at the top of the OSHA 300 Log, enter a one or two line description for each recordable injury or illness, and summarize this information on the OSHA 300-A at the end of the year. **1904.29(b)(2)** ***What do I need to do to complete the OSHA 301 Incident Report?*** You must complete an OSHA 301 Incident Report form, or an equivalent form, for each recordable injury or illness entered on the OSHA 300 Log. **1904.29(b)(3)** ***How quickly must each injury or illness be recorded?*** You must enter each recordable injury or illness on the OSHA 300 Log and 301 Incident Report within seven (7) calendar days of receiving information that a recordable injury or illness has occurred. **1904.29(b)(4)** ***What is an equivalent form?*** An equivalent form is one that has the same information, is as readable and understandable, and is completed using the same instructions as the OSHA form it replaces. Many employers use an insurance form instead of the OSHA 301 Incident Report, or supplement an insurance form by adding any additional information required by OSHA. **1904.29(b)(5)** ***May I keep my records on a computer?*** Yes, if the computer can produce equivalent forms when they are needed, as described under §§1904.35 and 1904.40, you may keep your records using the computer system. **1904.29(b)(6)** ***Are there situations where I do not put the employee's name on the forms for privacy reasons?*** Yes, if you have a "privacy concern case," you may not enter the employee's name on the OSHA 300 Log. Instead, enter "privacy case" in the space normally used for the employee's name. This will protect the privacy of the injured or ill employee when another employee, a former employee, or an authorized employee representative is provided access to the OSHA 300 Log under §1904.35(b)(2). You must keep a separate, confidential list of the case numbers and employee names for your privacy concern cases so you can update the cases and provide the information to the government if asked to do so. **1904.29(b)(7)** ***How do I determine if an injury or illness is a privacy concern case?*** You must consider the following injuries or illnesses to be privacy concern cases: **1904.29(b)(7)(i)** An injury or illness to an intimate body part or the reproductive system; **1904.29(b)(7)(ii)** An injury or illness resulting from a sexual assault; **1904.29(b)(7)(iii)** Mental illnesses; **1904.29(b)(7)(iv)** HIV infection, hepatitis, or tuberculosis; **1904.29(b)(7)(v)** Needlestick injuries and cuts from sharp objects that are contaminated with another person's blood or other potentially infectious material (see §1904.8 for definitions); and **1904.29(b)(7)(vi)** Other illnesses, if the employee voluntarily requests that his or her name not be entered on the log. **1904.29(b)(8)** ***May I classify any other types of injuries and illnesses as privacy concern cases?*** No, this is a complete list of all injuries and illnesses considered privacy concern cases for part 1904 purposes. **1904.29(b)(9)** ***If I have removed the employee's name, but still believe that the employee may be identified from the information on the forms, is there anything else that I can do to further protect the employee's privacy?*** Yes, if you have a reasonable basis to believe that information describing the privacy concern case may be personally identifiable even though the employee's name has been omitted, you may use discretion in describing the injury or illness on both the OSHA 300 and 301 forms. You must enter enough information to identify the cause of the incident and the general severity of the injury or illness, but you do not need to include details of an intimate or private nature. For example, a sexual assault case could be described as "injury from assault," or an injury to a reproductive organ could be described as "lower abdominal injury." **1904.29(b)(10)** ***What must I do to protect employee privacy if I wish to provide access to the OSHA Forms 300 and 301 to persons other than government representatives, employees, former employees or authorized representatives?*** If you decide to voluntarily disclose the Forms to persons other than government representatives, employees, former employees or authorized representatives (as required by §§1904.35 and 1904.40), you must remove or hide the employees' names and other personally identifying information, except for the following cases. You may disclose the Forms with personally identifying information only: **1904.29(b)(10)(i)** to an auditor or consultant hired by the employer to evaluate the safety and health program; **1904.29(b)(10)(ii)** to the extent necessary for processing a claim for workers' compensation or other insurance benefits; or **1904.29(b)(10)(iii)** to a public health authority or law enforcement agency for uses and disclosures for which consent, an authorization, or opportunity to agree or object is not required under Department of Health and Human Services Standards for Privacy of Individually Identifiable Health Information, 45 CFR 164.512.	No	Policy or procedure needed to capture this requirement and assign responsibility..	X	X		X	
	1904.31 - Covered employees.	**1904.31(a)** ***Basic requirement.*** You must record on the OSHA 300 Log the recordable injuries and illnesses of all employees on your payroll, whether they are labor, executive, hourly, salary, part-time, seasonal, or migrant workers. You also must record the recordable injuries and illnesses that occur to employees who are not on your payroll if you supervise these employees on a day-to-day basis. If your business is organized as a sole proprietorship or partnership, the owner or partners are not considered employees for recordkeeping purposes. **1904.31(b)** ***Implementation.*** **1904.31(b)(1)** ***If a self-employed person is injured or becomes ill while doing work at my business, do I need to record the injury or illness?*** No, self-employed individuals are not covered by the OSH Act or this regulation. **1904.31(b)(2)** ***If I obtain employees from a temporary help service, employee leasing service, or personnel supply service, do I have to record an injury or illness occurring to one of those employees?*** You must record these injuries and illnesses if you supervise these employees on a day-to-day basis. **1904.31(b)(3)** ***If an employee in my establishment is a contractor's employee, must I record an injury or illness occurring to that employee?*** If the contractor's employee is under the day-to-day supervision of the contractor, the contractor is responsible for recording the injury or illness. If you supervise the contractor employee's work on a day-to-day basis, you must record the injury or illness. **1904.31(b)(4)** ***Must the personnel supply service, temporary help service, employee leasing service, or contractor also record the injuries or illnesses occurring to temporary, leased or contract employees that I supervise on a day-to-day basis?*** No, you and the temporary help service, employee leasing service, personnel supply service, or contractor should coordinate your efforts to make sure that each injury and illness is recorded only once: either on your OSHA 300 Log (if you provide day-to-day supervision) or on the other employer's OSHA 300 Log (if that company provides day-to-day supervision).	No	Policy or procedure needed to capture this requirement and assign responsibility..	X	X			

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1904.32 - Annual summary.	*1904.32(a) Basic requirement. At the end of each calendar year, you must:* **1904.32(a)(1)** *Review the OSHA 300 Log to verify that the entries are complete and accurate, and correct any deficiencies identified;* **1904.32(a)(2)** *Create an annual summary of injuries and illnesses recorded on the OSHA 300 Log;* **1904.32(a)(3)** *Certify the summary; and* **1904.32(a)(4)** *Post the annual summary.* **1904.32(b)** *Implementation—* **1904.32(b)(1)** *How extensively do I have to review the OSHA 300 Log entries at the end of the year? You must review the entries as extensively as necessary to make sure that they are complete and correct.* **1904.32(b)(2)** *How do I complete the annual summary? You must:* **1904.32(b)(2)(i)** *Total the columns on the OSHA 300 Log (if you had no recordable cases, enter zeros for each column total); and* **1904.32(b)(2)(ii)** *Enter the calendar year covered, the company's name, establishment name, establishment address, annual average number of employees covered by the OSHA 300 Log, and the total hours worked by all employees covered by the OSHA 300 Log.* **1904.32(b)(2)(iii)** *If you are using an equivalent form other than the OSHA 300-A summary form, as permitted under § 1904.6(b)(4), the summary you use must also include the employee access and employer penalty statements found on the OSHA 300-A Summary form.* **1904.32(b)(3)** *How do I certify the annual summary? A company executive must certify that he or she has examined the OSHA 300 Log and that he or she reasonably believes, based on his or her knowledge of the process by which the information was recorded, that the annual summary is correct and complete.* **1904.32(b)(4)** *Who is considered a company executive? The company executive who certifies the log must be one of the following persons:* **1904.32(b)(4)(i)** *An owner of the company (only if the company is a sole proprietorship or partnership);* **1904.32(b)(4)(ii)** *An officer of the corporation;* **1904.32(b)(4)(iii)** *The highest ranking company official working at the establishment; or* **1904.32(b)(4)(iv)** *The immediate supervisor of the highest ranking company official working at the establishment.* **1904.32(b)(5)** *How do I post the annual summary? You must post a copy of the annual summary in each establishment in a conspicuous place or places where notices to employees are customarily posted. You must ensure that the posted annual summary is not altered, defaced or covered by other material.* **1904.32(b)(6)** *When do I have to post the annual summary? You must post the summary no later than February 1 of the year following the year covered by the records and keep the posting in place until April 30.*	No	Policy or procedure needed to capture this requirement and assign responsibility..		X		X	
	1904.33 - Retention and updating.	**1904.33(a)** *Basic requirement* . You must save the OSHA 300 Log, the privacy case list (if one exists), the annual summary, and the OSHA 301 Incident Report forms for five (5) years following the end of the calendar year that these records cover. **1904.33(b)** *Implementation* — **1904.33(b)(1)** *Do I have to update the OSHA 300 Log during the five-year storage period?* Yes, during the storage period, you must update your stored OSHA 300 Logs to include newly discovered recordable injuries or illnesses and to show any changes that have occurred in the classification of previously recorded injuries and illnesses. If the description or outcome of a case changes, you must remove or line out the original entry and enter the new information. **1904.33(b)(2)** *Do I have to update the annual summary?* No, you are not required to update the annual summary, but you may do so if you wish. **1904.33(b)(3)** *Do I have to update the OSHA 301 Incident Reports?* No, you are not required to update the OSHA 301 Incident Reports, but you may do so if you wish.	No	Policy or procedure needed to capture this requirement and assign responsibility..		X			
	1904.35 - Employee involvement.	**1904.35(a)** *Basic requirement.* Your employees and their representatives must be involved in the recordkeeping system in several ways. **1904.35(a)(1)** You must inform each employee of how he or she is to report a work-related injury or illness to you. **1904.35(a)(2)** You must provide employees with the information described in paragraph (b)(1)(iii) of this section. **1904.35(a)(3)** You must provide access to your injury and illness records for your employees and their representatives as described in paragraph (b)(2) of this section. **1904.35(b)(1)** *Implementation.* **1904.35(b)(1)** *What must I do to make sure that employees report work-related injuries and illnesses to me?* **1904.35(b)(1)(i)** You must establish a reasonable procedure for employees to report work-related injuries and illnesses promptly and accurately. A procedure is not reasonable if it would deter or discourage a reasonable employee from accurately reporting a workplace injury or illness; **1904.35(b)(1)(ii)** You must inform each employee of your procedure for reporting work-related injuries and illnesses; **1904.35(b)(1)(iii)** You must inform each employee that: **1904.35(b)(1)(iii)(A)** Employees have the right to report work-related injuries and illnesses; and **1904.35(b)(1)(iii)(B)** Employers are prohibited from discharging or in any manner discriminating against employees for reporting work-related injuries or illnesses; and **1904.35(b)(1)(iv)** You must not discharge or in any manner discriminate against any employee for reporting a work-related injury or illness. **1904.35(b)(2)** *Do I have to give my employees and their representatives access to the OSHA injury and illness records?*. Yes, your employees, former employees, their personal representatives, and their authorized employee representatives have the right to access the OSHA injury and illness records, with some limitations, as discussed below. **1904.35(b)(2)(i)** *Who is an authorized employee representative?* An authorized employee representative is an authorized collective bargaining agent of employees. **1904.35(b)(2)(ii)** *Who is a "personal representative" of an employee or former employee?* A personal representative is: **1904.35(b)(2)(ii)(A)** Any person that the employee or former employee designates as such, in writing; or **1904.35(b)(2)(ii)(B)** The legal representative of a deceased or legally incapacitated employee or former employee. **1904.35(b)(2)(iii)** *If an employee or representative asks for access to the OSHA 300 Log, when do I have to provide it?* When an employee, former employee, personal representative, or authorized employee representative asks for copies of your current or stored OSHA 300 Log(s) for an establishment the employee or former employee has worked in, you must give the requester a copy of the relevant OSHA 300 Log(s) by the end of the next business day. **1904.35(b)(2)(iv)** *May I remove the names of the employees or any other information from the OSHA 300 Log before I give copies to an employee, former employee, or employee representative?* No, you must leave the names on the 300 Log. However, to protect the privacy of injured and ill employees, you may not record the employee's name on the OSHA 300 Log for certain "privacy concern cases," as specified in § 1904.29(b)(6) through (9). **1904.35(b)(2)(v)** *If an employee or representative asks for access to the OSHA 301 Incident Report, when do I have to provide it?* **1904.35(b)(2)(v)(A)** When an employee, former employee, or personal representative asks for a copy of the OSHA 301 Incident Report describing an injury or illness to that employee or former employee, you must give the requester a copy of the OSHA 301 Incident Report containing that information by the end of the next business day. **1904.35(b)(2)(v)(B)** When an authorized employee representative asks for copies of the OSHA 301 Incident Reports for an establishment where the agent represents employees under a collective bargaining agreement, you must give copies of those forms to the authorized employee representative within 7 calendar days. You are only required to give the authorized employee representative information from the OSHA 301 Incident Report section titled "Tell us about the case." You must remove all other information from the copy of the OSHA 301 Incident Report or the equivalent substitute form that you give to the authorized employee representative. **1904.35(b)(2)(vi)** *May I charge for the copies?* No, you may not charge for these copies the first time they are provided. However, if one of the designated persons asks for additional copies, you may assess a reasonable charge for retrieving and copying the records."	Partial	Policy requires employees to report incidents, and has an anonymity provision, however policy is too brief/high-level and is silent on many individual provisions of the regulation.	X	X			
	1904.39 - Reporting fatalities, hospitalizations, amputations, and losses of an eye as a result of work-related incidents to OSHA.	**1904.39(a)** *Basic requirement.* **1904.39(a)(1)** Within eight (8) hours after the death of any employee as a result of a work-related incident, you must report the fatality to the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor. **1904.39(a)(2)** Within twenty-four (24) hours after the in-patient hospitalization of one or more employees or an employee's amputation or an employee's loss of an eye, as a result of a work-related incident, you must report the in-patient hospitalization, amputation, or loss of an eye to OSHA. **1904.39(a)(3)** You must report the fatality, inpatient hospitalization, amputation, or loss of an eye using one of the following methods: **1904.39(a)(3)(i)** By telephone or in person to the OSHA Area Office that is nearest to the site of the incident. **1904.39(a)(3)(ii)** By telephone to the OSHA toll-free central telephone number, 1-800-321-OSHA (1-800-321-6742). **1904.39(a)(3)(iii)** By electronic submission using the reporting application located on OSHA's public Web site at *www.osha.gov* . **1904.39(b)** *Implementation* **1904.39(b)(1)** *If the Area Office is closed, may I report the fatality, in-patient hospitalization, amputation, or loss of an eye by leaving a message on OSHA's answering machine, faxing the Area Office, or sending an email?* No, if the Area Office is closed, you must report the fatality, in-patient hospitalization, amputation, or loss of an eye using either the 800 number or the reporting application located on OSHA's public Web site at *www.osha.gov* . **1904.39(b)(2)** *What information do I need to give to OSHA about the in-patient hospitalization, amputation, or loss of an eye?* You must give OSHA the following information for each fatality, in-patient hospitalization, amputation, or loss of an eye: **1904.39(b)(2)(i)** The establishment name; **1904.39(b)(2)(ii)** The location of the work-related incident; **1904.39(b)(2)(iii)** The time of the work-related incident; **1904.39(b)(2)(iv)** The type of reportable event (i.e., fatality, in-patient hospitalization, amputation, or loss of an eye); **1904.39(b)(2)(v)** The number of employees who suffered a fatality, in-patient hospitalization, amputation, or loss of an eye; **1904.39(b)(2)(vi)** The names of the employees who suffered a fatality, in-patient hospitalization, amputation, or loss of an eye; **1904.39(b)(2)(vii)** Your contact person and his or her phone number; and **1904.39(b)(2)(viii)** A brief description of the work-related incident. **1904.39(b)(3)** *Do I have to report the fatality, inpatient hospitalization, amputation, or loss of an eye if it resulted from a motor vehicle accident on a public street or highway?* If the motor vehicle accident occurred in a construction work zone, you must report the fatality, in-patient hospitalization, amputation, or loss of an eye. If the motor vehicle accident occurred on a public street or highway, but not in a construction work zone, you do not have to report the fatality, inpatient hospitalization, amputation, or loss of an eye to OSHA. However, the fatality, in-patient hospitalization, amputation, or loss of an eye must be recorded on your OSHA injury and illness records, if you are required to keep such records. **1904.39(b)(4)** *Do I have to report the fatality, inpatient hospitalization, amputation, or loss of an eye if it occurred on a commercial or public transportation system?* No, you do not have to report the fatality, in-patient hospitalization, amputation, or loss of an eye to OSHA if it occurred on a commercial or public transportation system (e.g., airplane, train, subway, or bus). However, the fatality, in-patient hospitalization, amputation, or loss of an eye must be recorded on your OSHA injury and illness records, if you are required to keep such records. **1904.39(b)(5)** *Do I have to report a work-related fatality or in-patient hospitalization caused by a heart attack?* Yes, your local OSHA Area Office director will decide whether to investigate the event, depending on the circumstances of the heart attack. **1904.39(b)(6)** *What if the fatality, in-patient hospitalization, amputation, or loss of an eye does not occur during or right after the work-related incident?* You must only report a fatality to OSHA if the fatality occurs within thirty (30) days of the work-related incident. For an in-patient hospitalization, amputation, or loss of an eye, you must only report the event to OSHA if it occurs within twenty-four (24) hours of the work-related incident. However, the fatality, in-patient hospitalization, amputation, or loss of an eye must be recorded on your OSHA injury and illness records, if you are required to keep such records. **1904.39(b)(7)** *What if I don't learn about a reportable fatality, in-patient hospitalization, amputation, or loss of an eye right away?* If you do not learn about a reportable fatality, in-patient hospitalization, amputation, or loss of an eye at the time it takes place, you must make the report to OSHA within the following time period after the fatality, in-patient hospitalization, amputation, or loss of an eye is reported to you or to any of your agent(s): Eight (8) hours for a fatality, and twenty-four (24) hours for an in-patient hospitalization, an amputation, or a loss of an eye. **1904.39(b)(8)** *What if I don't learn right away that the reportable fatality, in-patient hospitalization, amputation, or loss of an eye was the result of a work-related incident?* If you do not learn right away that the reportable fatality, in-patient hospitalization, amputation, or loss of an eye was the result of a work-related incident, you must make the report to OSHA within the following time period after you or any of your agent(s) learn that the reportable fatality, in-patient hospitalization, amputation, or loss of an eye was the result of a work-related incident: Eight (8) hours for a fatality, and twenty-four (24) hours for an inpatient hospitalization, an amputation, or a loss of an eye. **1904.39(b)(9)** *How does OSHA define "in-patient hospitalization"?* OSHA defines inpatient hospitalization as a formal admission to the in-patient service of a hospital or clinic for care or treatment. **1904.39(b)(10)** *Do I have to report an in-patient hospitalization that involves only observation or diagnostic testing?* No, you do not have to report an in-patient hospitalization that involves only observation or diagnostic testing. You must only report to OSHA each inpatient hospitalization that involves care or treatment. **1904.39(b)(11)** *How does OSHA define "amputation"?* An amputation is the traumatic loss of a limb or other external body part. Amputations include a part, such as a limb or appendage, that has been severed, cut off, amputated (either completely or partially); fingertip amputations with or without bone loss; medical amputations resulting from irreparable damage; amputations of body parts that have since been reattached. Amputations do not include avulsions, enucleations, deglovings, scalpings, severed ears, or broken or chipped teeth.	Partial	Policy states immediate reporting to management for all work-related accidents, however policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1904.40 - Providing records to government representatives.	**1904.40(a)** *Basic requirement* . When an authorized government representative asks for the records you keep under part 1904, you must provide copies of the records within four (4) business hours. **1904.40(b)** *Implementation* — **1904.40(b)(1)** *What government representatives have the right to get copies of my part 1904 records?* The government representatives authorized to receive the records are: **1904.40(b)(1)(i)** A representative of the Secretary of Labor conducting an inspection or investigation under the Act; **1904.40(b)(1)(ii)** A representative of the Secretary of Health and Human Services (including the National Institute for Occupational Safety and Health—NIOSH) conducting an investigation under section 20(b) of the Act, or **1904.40(b)(1)(iii)** A representative of a State agency responsible for administering a State plan approved under section 18 of the Act. **1904.40(b)(2)** *Do I have to produce the records within four (4) hours if my records are kept at a location in a different time zone?* OSHA will consider your response to be timely if you give the records to the government representative within four (4) business hours of the request. If you maintain the records at a location in a different time zone, you may use the business hours of the establishment at which the records are located when calculating the deadline.	No	Not covered in PGDs		X			
	1904.42 - Requests from the Bureau of Labor Statistics for data.	**1904.42(a)** ***Basic requirement.*** If you receive a Survey of Occupational Injuries and Illnesses Form from the Bureau of Labor Statistics (BLS), or a BLS designee, you must promptly complete the form and return it following the instructions contained on the survey form. **1904.42(b)** ***Implementation.*** ***1904.42(b)(1) Does every employer have to send data to the BLS?*** *No, each year, the BLS sends injury and illness survey forms to randomly selected employers and uses the information to create the Nation's occupational injury and illness statistics. In any year, some employers will receive a BLS survey form and others will not. You do not have to send injury and illness data to the BLS unless you receive a survey form.* ***1904.42(b)(2) If I get a survey form from the BLS, what do I have to do?*** *If you receive a Survey of Occupational Injuries and Illnesses Form from the Bureau of Labor Statistics (BLS), or a BLS designee, you must promptly complete the form and return it, following the instructions contained on the survey form.* ***1904.42(b)(3) Do I have to respond to a BLS survey form if I am normally exempt from keeping OSHA injury and illness records?*** *Yes, even if you are exempt from keeping injury and illness records under § 1904.1 to § 1904.3, the BLS may inform you in writing that it will be collecting injury and illness information from you in the coming year. If you receive such a letter, you must keep the injury and illness records required by § 1904.5 to § 1904.15 and make a survey report for the year covered by the survey.* ***1904.42(b)(4) Do I have to answer the BLS survey form if I am located in a State-Plan State?*** *Yes, all employers who receive a survey form must respond to the survey, even those in State-Plan States.*	No	Not covered in PGDs		X			
	1910.23 - Ladders.	From the HASP "Except where more stringent requirements may exist, all stairways and ladders shall be in accordance with OSHA **29 CFR 1926 Subpart X."**	Partial	Policies require correct use of ladders and reference OSHA 29 CRF 1926 Subpart X, however policy is too brief/high-level and is silent on many individual provisions of the regulation such as ladder type, material and load rating.	X				
	1910.25 - Stairways.	From the HASP "Except where more stringent requirements may exist, all stairways and ladders shall be in accordance with OSHA **29 CFR 1926 Subpart X."**	Partial	Policies reference OSHA 29 CRF 1926 Subpart X, however policy is too brief/high-level and is silent on many individual provisions of the regulation such as handrail/stairrail requirements.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1910.28 - Duty to have fall protection and falling object protection.	**1910.28(a)(1)** This section requires employers to provide protection for each employee exposed to fall and falling object hazards. Unless stated otherwise, the employer must ensure that all fall protection and falling object protection required by this section meet the criteria in § 1910.29, except that personal fall protection systems required by this section meet the criteria of § 1910.140. 1910.28(b) Protection from fall hazards- 1910.28(b)(1) Unprotected sides and edges. 1910.28(b)(1)(i) Except as provided elsewhere in this section, the employer must ensure that each employee on a walking-working surface with an unprotected side or edge that is 4 feet (1.2 m) or more above a lower level is protected from falling by one or more of the following: 1910.28(b)(1)(i)(A) Guardrail systems; 1910.28(b)(1)(i)(B) Safety net systems; or 1910.28(b)(1)(i)(C) Personal fall protection systems, such as personal fall arrest, travel restraint, or positioning systems. 1910.28(b)(1)(ii) When the employer can demonstrate that it is not feasible or creates a greater hazard to use guardrail, safety net, or personal fall protection systems on residential roofs, the employer must develop and implement a fall protection plan that meets the requirements of 29 CFR 1926.502(k) and training that meets the requirements of 29 CFR 1926.503(a) and (c).	Partial	Policy states the need for fall protection when working at heights, however policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.29 - Fall protection systems and falling object protection-criteria and practices.	**1910.29(a)(1)** Ensure each fall protection system and falling object protection, other than personal fall protection systems, that this part requires meets the requirements in this section. The employer must ensure each personal fall protection system meets the requirements in subpart I of this part; and **1910.29(a)(2)** Provide and install all fall protection systems and falling object protection this subpart requires, and comply with the other requirements in this subpart before any employee begins work that necessitates fall or falling object protection.	Partial	Policy states the need for fall protection when working at heights, however policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.30 - Training requirements.		Partial	Policy states the need for fall protection when working at heights, however policy is too brief/high-level and is silent on many individual provisions of the regulation.	X	X	X		
26 Subpart M - Fall tection									
	1926.500 - Scope, application, and definitions applicable to this subpart.	**1926.500(a)(1)** This subpart sets forth requirements and criteria for fall protection in construction workplaces covered under 29 CFR part 1926. Exception: The provisions of this subpart do not apply when employees are making an inspection, investigation, or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed. **1926.500(a)(2)** Section 1926.501 sets forth those workplaces, conditions, operations, and circumstances for which fall protection shall be provided except as follows: **1926.500(a)(2)(i)** Requirements relating to fall protection for employees working on scaffolds are provided in subpart L of this part. **1926.500(a)(2)(ii)** Requirements relating to fall protection for employees working on cranes and derricks are provided in subpart CC of this part. **1926.500(a)(2)(iii)** Fall protection requirements for employees performing steel erection work (except for towers and tanks) are provided in subpart R of this part. **1926.500(a)(2)(iv)** Requirements relating to fall protection for employees working on certain types of equipment used in tunneling operations are provided in subpart S of this part. **1926.500(a)(2)(v)** Requirements relating to fall protection for employees engaged in the erection of tanks and communication and broadcast towers are provided in § 1926.105. **1926.500(a)(2)(vi)** Subpart V of this part provides requirements relating to fall protection for employees working from aerial lifts or on poles, towers, or similar structures while engaged in the construction of electric transmission or distribution lines or equipment. **1926.500(a)(2)(vii)** Requirements relating to fall protection for employees working on stairways and ladders are provided in subpart X of this part.	No	Policy states fall protection is required when working at heights, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1926.501 - Duty to have fall protection.	**1926.501(a)(1)** This section sets forth requirements for employers to provide fall protection systems. All fall protection required by this section shall conform to the criteria set forth in 1926.502 of this subpart. **1926.501(a)(2)** The employer shall determine if the walking/working surfaces on which its employees are to work have the strength and structural integrity to support employees safely. Employees shall be allowed to work on those surfaces only when the surfaces have the requisite strength and structural integrity. **1926.501(b) 1926.501(b)(1)** "Unprotected sides and edges." Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems. **1926.501(b)(2)** "Leading edges." **1926.501(b)(2)(i)** Each employee who is constructing a leading edge 6 feet (1.8 m) or more above lower levels shall be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems. Exception: When the employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer shall develop and implement a fall protection plan which meets the requirements of paragraph (k) of 1926.502. Note: There is a presumption that it is feasible and will not create a greater hazard to implement at least one of the above-listed fall protection systems. Accordingly, the employer has the burden of establishing that it is appropriate to implement a fall protection plan which complies with 1926.502(k) for a particular workplace situation, in lieu of implementing any of those systems. **1926.501(b)(2)(ii)** Each employee on a walking/working surface 6 feet (1.8 m) or more above a lower level where leading edges are under construction, but who is not engaged in the leading edge work, shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system. If a guardrail system is chosen to provide the fall protection, and a controlled access zone has already been established for leading edge work, the control line may be used in lieu of a guardrail along the edge that parallels the leading edge. **1926.501(b)(3)** "Hoist areas." Each employee in a hoist area shall be protected from falling 6 feet (1.8 m) or more to lower levels by guardrail systems or personal fall arrest systems. If guardrail systems, [or chain, gate, or guardrail] or portions thereof, are removed to facilitate the hoisting operation (e.g., during landing of materials), and an employee must lean through the access opening or out over the edge of the access opening (to receive or guide equipment and materials, for example), that employee shall be protected from fall hazards by a personal fall arrest system. **1926.501(b)(4)** "Holes." **1926.501(b)(4)(i)** Each employee on walking/working surfaces shall be protected from falling through holes (including skylights) more than 6 feet (1.8 m) above lower levels, by personal fall arrest systems, covers, or guardrail systems erected around such holes. **1926.501(b)(4)(ii)** Each employee on a walking/working surface shall be protected from tripping in or stepping into or through holes (including skylights) by covers. **1926.501(b)(4)(iii)** Each employee on a walking/working surface shall be protected from objects falling through holes (including skylights) by covers. **1926.501(b)(6)** "Ramps, runways, and other walkways." Each employee on ramps, runways, and other walkways shall be protected from falling 6 feet (1.8 m) or more to lower levels by guardrail systems. **1926.501(b)(7)** "Excavations." **1926.501(b)(7)(i)** Each employee at the edge of an excavation 6 feet (1.8 m) or more in depth shall be protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or other visual barrier; **1926.501(b)(7)(ii)** Each employee at the edge of a well, pit, shaft, and similar excavation 6 feet (1.8 m) or more in depth shall be protected from falling by guardrail systems, fences, barricades, or covers. **1926.501(b)(8)** "Dangerous equipment." **1926.501(b)(8)(i)** Each employee less than 6 feet (1.8 m) above dangerous equipment shall be protected from falling into or onto the dangerous equipment by guardrail systems or by equipment guards. **1926.501(b)(8)(ii)** Each employee 6 feet (1.8 m) or more above dangerous equipment shall be protected from fall hazards by guardrail systems, personal fall arrest systems, or safety net systems. **1926.501(b)(14)**"Wall openings." Each employee working on, at, above, or near wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is 6 feet (1.8 m) or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches (1.0 m) above the walking/working surface, shall be protected from falling by the use of a guardrail system, a safety net system, or a personal fall arrest system. **1926.501(b)(15)** "Walking/working surfaces not otherwise addressed." Except as provided in 1926.500(a)(2) or in 1926.501 (b)(1) through (b)(14), each employee on a walking/working surface 6 feet (1.8 m) or more above lower levels shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system. **1926.501(c)** "Protection from falling objects." When an employee is exposed to falling objects, the employer shall have each employee wear a hard hat and shall implement one of the following measures: **1926.501(c)(1)** Erect toeboards, screens, or guardrail systems to prevent objects from falling from higher levels; or, **1926.501(c)(2)** Erect a canopy structure and keep potential fall objects far enough from the edge of the higher level so that those objects would not go over the edge if they were accidentally displaced; or, **1926.501(c)(3)** Barricade the area to which objects could fall, prohibit employees from entering the barricaded area, and keep objects that may fall far enough away from the edge of a higher level so that those objects would not go over the edge if they were accidentally displaced .	No	Policy states fall protection is required when working at heights, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
26 Subpart X - irways and dders	1926.502 - Fall protection systems criteria and practices.	**1926.502(a)(1)** Fall protection systems required by this part shall comply with the applicable provisions of this section. **1926.502(a)(2)** Employers shall provide and install all fall protection systems required by this subpart for an employee, and shall comply with all other pertinent requirements of this subpart before that employee begins the work that necessitates the fall protection. **1926.502(b)** "Guardrail systems." Guardrail systems and their use shall comply with the following provisions: **1926.502(b)(1)** Top edge height of top rails, or equivalent guardrail system members, shall be 42 inches (1.1 m) plus or minus 3 inches (8 cm) above the walking/working level. When conditions warrant, the height of the top edge may exceed the 45-inch height, provided the guardrail system meets all other criteria of this paragraph. **1926.502(b)(2)** Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21 inches (53 cm) high. **1926.502(b)(2)(i)** Midrails, when used, shall be installed at a height midway between the top edge of the guardrail system and the walking/working level. **1926.502(b)(2)(ii)** Screens and mesh, when used, shall extend from the top rail to the walking/working level and along the entire opening between top rail supports. **1926.502(b)(2)(iii)** Intermediate members (such as balusters), when used between posts, shall be not more than 19 inches (48 cm) apart. **1926.502(b)(2)(iv)** Other structural members (such as additional midrails and architectural panels) shall be installed such that there are no openings in the guardrail system that are more than 19 inches (.5 m) wide. **1926.502(b)(3)** Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds (890 N) applied within 2 inches (5.1 cm) of the top edge, in any outward or downward direction, at any point along the top edge. **1926.502(b)(4)** When the 200 pound (890 N) test load specified in paragraph (b)(3) of this section is applied in a downward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches (1.0 m) above the walking/working level. Guardrail system components selected and constructed in accordance with the Appendix B to subpart M of this part will be deemed to meet this requirement. **1926.502(b)(5)** Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding, without failure, a force of at least 150 pounds (666 N) applied in any downward or outward direction at any point along the midrail or other member. **1926.502(b)(6)** Guardrail systems shall be so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing. **1926.502(b)(7)** The ends of all top rails and midrails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard. **1926.502(b)(8)** Steel banding and plastic banding shall not be used as top rails or midrails. **1926.502(b)(9)** Top rails and midrails shall be at least one-quarter inch (0.6 cm) nominal diameter or thickness to prevent cuts and lacerations. If wire rope is used for top rails, it shall be flagged at not more than 6-foot intervals with high-visibility material. 1926.502(d) "Personal fall arrest systems." Personal fall arrest systems and their use shall comply with the provisions set forth below. Effective January 1, 1998, body belts are not acceptable as part of a personal fall arrest system. Note: The use of a body belt in a positioning device system is acceptable and is regulated under paragraph (e) of this section. 1926.502(d)(1) Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials. 1926.502(d)(2) Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system. 1926.502(d)(3) Dee-rings and snaphooks shall have a minimum tensile strength of 5,000 pounds (22.2 kN). 1926.502(d)(4) Dee-rings and snaphooks shall be proof-tested to a minimum tensile load of 3,600 pounds (16 kN) without cracking, breaking, or taking permanent deformation. 1926.502(d)(5) Snaphooks shall be sized to be compatible with the member to which they are connected to prevent unintentional disengagement of the snaphook by depression of the snaphook keeper by the connected member, or shall be a locking type snaphook designed and used to prevent disengagement of the snaphook by the contact of the snaphook keeper by the connected member. Effective January 1, 1998, only locking type snaphooks shall be used. 1926.502(d)(6) Unless the snaphook is a locking type and designed for the following connections, snaphooks shall not be engaged: 1926.502(d)(6)(i) directly to webbing, rope or wire rope; 1926.502(d)(6)(ii) to each other; 1926.502(d)(6)(iii) to a dee-ring to which another snaphook or other connector is attached; 1926.502(d)(6)(iv) to a horizontal lifeline; or 1926.502(d)(6)(v) to any object which is incompatibly shaped or dimensioned in relation to the snaphook such that unintentional disengagement could occur by the connected object being able to depress the snaphook keeper and release itself. 1926.502(d)(7) On suspended scaffolds or similar work platforms with horizontal lifelines which may become vertical lifelines, the devices used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline. 1926.502(d)(8) Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two. 1926.502(d)(9) Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds (22.2 kN). 1926.502(d)(10) 926.502(d)(10)(i) Except as provided in paragraph (d)(10)(ii) of this section, when vertical lifelines are used, each employee shall be attached to a separate lifeline. 1926.502(d)(19) Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse. 1926.502(d)(20) The employer shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves. 1926.502(d)(21) Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration, and defective components shall be removed from service. 1926.502(d)(22) Body belts shall be at least one and five-eighths (1 5/8) inches (4.1 cm) wide. 1926.502(d)(23) Personal fall arrest systems shall not be attached to guardrail systems, nor shall they be attached to hoists except as specified in other subparts of this Part. 1926.502(h) "Safety monitoring systems." Safety monitoring systems [See 1926.501(b)(10) and 1926.502(k)] and their use shall comply with the following provisions: 1926.502(h)(1) The employer shall designate a competent person to monitor the safety of other employees and the employer shall ensure that the safety monitor compiles with the following requirements: 1926.502(h)(1)(i) The safety monitor shall be competent to recognize fall hazards; 1926.502(h)(1)(ii) The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner; 1926.502(h)(1)(iii) The safety monitor shall be on the same walking/working surface and within visual sighting distance of the employee being monitored; 1926.502(h)(1)(iv) The safety monitor shall be close enough to communicate orally with the employee; and 1926.502(h)(1)(v) The safety monitor shall not have other responsibilities which could take the monitor's attention from the monitoring function. 1926.502(h)(4)	No	Policy states fall protection is required when working at heights, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
		distance of the employee being monitored, 1926.502(i)(3)(iv) The safety monitor shall be close enough to communicate orally with the employee, and 1926.502(i)(3)(v) The safety monitor shall not have other responsibilities which could take the monitor's attention from the monitoring function. 1926.502(i)(4) Each employee working in a controlled access zone shall be directed to comply promptly with fall hazard warnings from safety monitors. 1926.502(j) "Covers." Covers for holes in floors, roofs, and other walking/working surfaces shall meet the following requirements: 1926.502(j)(1) Covers located in roadways and vehicular aisles shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover. 1926.502(j)(2) All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time. 1926.502(j)(3) All covers shall be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees. 1926.502(j)(4) All covers shall be color coded or they shall be marked with the word "HOLE" or "COVER" to provide warning of the hazard. 1926.502(j) "Protection from falling objects." Falling object protection shall comply with the following provisions: 1926.502(j)(1) Toeboards, when used as falling object protection, shall be erected along the edge of the overhead walking/working surface for a distance sufficient to protect employees below. 1926.502(j)(2) Toeboards shall be capable of withstanding, without failure, a force of at least 50 pounds (222 N) applied in any downward or outward direction at any point along the toeboard. 1926.502(j)(3) Toeboards shall be a minimum of 3 1/2 inches (9 cm) in vertical height from their top edge to the level of the walking/working surface. They shall have not more than 1/4 inch (0.6 cm) clearance above the walking/working surface. They shall be solid or have openings not over 1 inch (2.5 cm) in greatest dimension. 1926.502(j)(4) Where tools, equipment, or materials are piled higher than the top edge of a toeboard, paneling or screening shall be erected from the walking/working surface or toeboard to the top of a guardrail system's top rail or midrail, for a distance sufficient to protect employees below. 1926.502(j)(5) Guardrail systems, when used as falling object protection, shall have all openings small enough to prevent passage of potential falling objects. 1926.502(k) "Fall protection plan." This option is available only to employees engaged in leading edge work, precast concrete erection work, or residential construction work (See 1926.501(b)(2), (b)(12), and (b)(13)) who can demonstrate that it is infeasible or it creates a greater hazard to use conventional fall protection equipment. The fall protection plan must conform to the following provisions. 1926.502(k)(1) The fall protection plan shall be prepared by a qualified person and developed specifically for the site where the leading edge work, precast concrete work, or residential construction work is being performed and the plan must be maintained up to date. 1926.502(k)(2) Any changes to the fall protection plan shall be approved by a qualified person. 1926.502(k)(3) A copy of the fall protection plan with all approved changes shall be maintained at the job site. 1926.502(k)(4) The implementation of the fall protection plan shall be under the supervision of a competent person. 1926.502(k)(5) The fall protection plan shall document the reasons why the use of conventional fall protection systems (guardrail systems, personal fall arrest systems, or safety nets systems) are infeasible or why their use would create a greater hazard. 1926.502(k)(6) The fall protection plan shall include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection from the conventional fall protection systems. For example, the employer shall discuss the extent to which scaffolds, ladders, or vehicle mounted work platforms can be used to provide a safer working surface and thereby reduce the hazard of falling. 1926.502(k)(7) The fall protection plan shall identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as controlled access zones and the employer must comply with the criteria in paragraph (g) of this section. 1926.502(k)(8) Where no other alternative measure has been implemented, the employer shall implement a safety monitoring system in conformance with 1926.502(h). 1926.502(k)(9) The fall protection plan must include a statement which provides the name or other method of identification for each employee who is designated to work in controlled access zones. No other employees may enter controlled access zones. 1926.502(k)(10) In the event an employee falls, or some other related, serious incident occurs, (e.g., a near miss) the employer shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and shall implement those changes to prevent similar types of falls or incidents.								
.0 Subpart E - Means Egress									
	1910.34 - Coverage and definitions.	**1910.34(a)** Every employer is covered. Sections 1910.34 through 1910.39 apply to workplaces in general industry except mobile workplaces such as vehicles or vessels. **1910.34(b)** Exits routes are covered. The rules in §§ 1910.34 through 1910.39 cover the minimum requirements for exit routes that employers must provide in their workplace so that employees may evacuate the workplace safely during an emergency. Sections 1910.34 through 1910.39 also cover the minimum requirements for emergency action plans and fire prevention plans.	Partial	Policy states emergency response procedures and evacuation procedures, however policy is too brief/high-level and is silent on many individual provisions of the regulation such as exit routes and written plans.	X				
	1910.35 - Compliance with alternate exit-route codes.	OSHA will deem an employer demonstrating compliance with the exit-route provisions of NFPA 101, Life Safety Code, 2009 edition, or the exit-route provisions of the International Fire Code, 2009 edition, to be in compliance with the corresponding requirements in §§ 1910.34, 1910.36, and 1910.37 (incorporated by reference, see section § 1910.6).	Partial	Policy states emergency response procedures and evacuation procedures, however policy is too brief/high-level and is silent on many individual provisions of the regulation such as exit routes and written plans.	X				
	1910.36 - Design and construction requirements for exit routes.	**1910.36(a)** ***Basic requirements.*** Exit routes must meet the following design and construction requirements: **1910.36(a)(1)** ***An exit route must be permanent.*** Each exit route must be a permanent part of the workplace. **1910.36(a)(2)** ***An exit must be separated by fire resistant materials.*** Construction materials used to separate an exit from other parts of the workplace must have a one-hour fire resistance-rating if the exit connects three or fewer stories and a two-hour fire resistance-rating if the exit connects four or more stories. **1910.36(a)(3)** ***Openings into an exit must be limited.*** An exit is permitted to have only those openings necessary to allow access to the exit from occupied areas of the workplace, or to the exit discharge. An opening into an exit must be protected by a self-closing fire door that remains closed or automatically closes in an emergency upon the sounding of a fire alarm or employee alarm system. Each fire door, including its frame and hardware, must be listed or approved by a nationally recognized testing laboratory. Section 1910.155(c)(3)(iv)(A) of this part defines "listed" and § 1910.7 of this part defines a "nationally recognized testing laboratory." **1910.36(b)** ***The number of exit routes must be adequate.*** **1910.36(b)(1)** ***Two exit routes.*** At least two exit routes must be available in a workplace to permit prompt evacuation of employees and other building occupants during an emergency, except as allowed in paragraph (b)(3) of this section. The exit routes must be located as far away as practical from each other so that if one exit route is blocked by fire or smoke, employees can evacuate using the second exit route. **1910.36(b)(2)** ***More than two exit routes.*** More than two exit routes must be available in a workplace if the number of employees, the size of the building, its occupancy, or the arrangement of the workplace is such that all employees would not be able to evacuate safely during an emergency. **1910.36(b)(3)** ***A single exit route.*** A single exit route is permitted where the number of employees, the size of the building, its occupancy, or the arrangement of the workplace is such that all employees would be able to evacuate safely during an emergency. **Note to paragraph (b) of this section:** For assistance in determining the number of exit routes necessary for your workplace, consult NFPA 101-2009, Life Safety Code, or IFC- 2009, International Fire Code (incorporated by reference, see § 1910.6). **1910.36(c)** ***Exit discharge.*** **1910.36(c)(1)** Each exit discharge must lead directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside. **1910.36(c)(2)** The street, walkway, refuge area, public way, or open space to which an exit discharge leads must be large enough to accommodate the building occupants likely to use the exit route. **1910.36(c)(3)** Exit stairs that continue beyond the level on which the exit discharge is located must be interrupted at that level by doors, partitions, or other effective means that clearly indicate the direction of travel leading to the exit discharge. **1910.36(d)** ***An exit door must be unlocked.*** **1910.36(d)(1)** Employees must be able to open an exit route door from the inside at all times without keys, tools, or special knowledge. A device such as a panic bar that locks only from the outside is permitted on exit discharge doors. **1910.36(d)(2)** Exit route doors must be free of any device or alarm that could restrict emergency use of the exit route if the device or alarm fails. **1910.36(d)(3)** An exit route door may be locked from the inside only in mental, penal, or correctional facilities and then only if supervisory personnel are continuously on duty and the employer has a plan to remove occupants from the facility during an emergency. **1910.36(e)** ***A side-hinged exit door must be used.*** **1910.36(e)(1)** A side-hinged door must be used to connect any room to an exit route. **1910.36(e)(2)** The door that connects any room to an exit route must swing out in the direction of exit travel if the room is designed to be occupied by more than 50 people or if the room is a high hazard area (***i.e.*** , contains contents that are likely to burn with extreme rapidity or explode). **1910.36(f)** ***The capacity of an exit route must be adequate.*** **1910.36(f)(1)** Exit routes must support the maximum permitted occupant load for each floor served. **1910.36(f)(2)** The capacity of an exit route may not decrease in the direction of exit route travel to the exit discharge. **Note to paragraph (f) of this section:** Information regarding the "Occupant load" is located in NFPA 101-2009, Life Safety Code, and in IFC-2009, International Fire Code (incorporated by reference, see § 1910.6). **1910.36(g)** ***An exit route must meet minimum height and width requirements.*** **1910.36(g)(1)** The ceiling of an exit route must be at least seven feet six inches (2.3 m) high. Any projection from the ceiling must not reach a point less than six feet eight inches (2.0 m) from the floor. **1910.36(g)(2)** An exit access must be at least 28 inches (71.1 cm) wide at all points. Where there is only one exit access leading to an exit or exit discharge, the width of the exit and exit discharge must be at least equal to the width of the exit access. **1910.36(g)(3)** The width of an exit route must be sufficient to accommodate the maximum permitted occupant load of each floor served by the exit route. **1910.36(g)(4)** Objects that project into the exit route must not reduce the width of the exit route to less than the minimum width requirements for exit routes. **1910.36(h)** ***An outdoor exit route is permitted.*** **1910.36(h)(1)** The outdoor exit route must have guardrails to protect unenclosed sides if a fall hazard exists; **1910.36(h)(2)** The outdoor exit route must be covered if snow or ice is likely to accumulate along the route, unless the employer can demonstrate that any snow or ice accumulation will be removed before it presents a slipping hazard; **1910.36(h)(3)** The outdoor exit route must be reasonably straight and have smooth, solid, substantially level walkways; and **1910.36(h)(4)** The outdoor exit route must not have a dead-end that is longer than 20 feet (6.2 m).	Partial	Policy states emergency response procedures and evacuation procedures, however policy is too brief/high-level and is silent on many individual provisions of the regulation such as exit routes and written plans.	X				
	1910.37 - Maintenance, safeguards, and operational features for exit routes.	**1910.37(a)** ***The danger to employees must be minimized.*** **1910.37(a)(1)** Exit routes must be kept free of explosive or highly flammable furnishings or other decorations. **1910.37(a)(2)** Exit routes must be arranged so that employees will not have to travel toward a high hazard area, unless the path of travel is effectively shielded from the high hazard area by suitable partitions or other physical barriers. **1910.37(a)(3)** Exit routes must be free and unobstructed. No materials or equipment may be placed, either permanently or temporarily, within the exit route. The exit access must not go through a room that can be locked, such as a bathroom, to reach an exit or exit discharge, nor may it lead into a dead-end corridor. Stairs or a ramp must be provided where the exit route is not substantially level. **1910.37(a)(4)** Safeguards designed to protect employees during an emergency (***e.g.*** , sprinkler systems, alarm systems, fire doors, exit lighting) must be in proper working order at all times. **1910.37(b)** ***Lighting and marking must be adequate and appropriate.*** **1910.37(b)(1)** Each exit route must be adequately lighted so that an employee with normal vision can see along the exit route. **1910.37(b)(2)** Each exit must be clearly visible and marked by a sign reading "Exit." **1910.37(b)(3)** Each exit route door must be free of decorations or signs that obscure the visibility of the exit route door. **1910.37(b)(4)** If the direction of travel to the exit or exit discharge is not immediately apparent, signs must be posted along the exit access indicating the direction of travel to the nearest exit and exit discharge. Additionally, the line-of-sight to an exit sign must clearly be visible at all times. **1910.37(b)(5)** Each doorway or passage along an exit access that could be mistaken for an exit must be marked "Not an Exit" or similar designation, or be identified by a sign indicating its actual use (***e.g.*** , closet). **1910.37(b)(6)** Each exit sign must be illuminated to a surface value of at least five foot-candles (54 lux) by a reliable light source and be distinctive in color. Self-luminous or electroluminescent signs that have a minimum luminance surface value of at least .06 foot lamberts (0.21 cd/m^2) are permitted. **1910.37(b)(7)** Each exit sign must have the word "Exit" in plainly legible letters not less than six inches (15.2 cm) high, with the principal strokes of the letters in the word "Exit" not less than three-fourths of an inch (1.9 cm) wide. **1910.37(c)** ***The fire retardant properties of paints or solutions must be maintained.*** Fire retardant paints or solutions must be renewed as often as necessary to maintain their fire retardant properties. **1910.37(d)** ***Exit routes must be maintained during construction, repairs, or alterations.*** **1910.37(d)(1)** During new construction, employees must not occupy a workplace until the exit routes required by this subpart are completed and ready for employee use for the portion of the workplace they occupy. **1910.37(d)(2)** During repairs or alterations, employees must not occupy a workplace unless the exit routes required by this subpart are available and existing fire protections are maintained, or until alternate fire protection is furnished that provides an equivalent level of safety. **1910.37(d)(3)** Employees must not be exposed to hazards of flammable or explosive substances or equipment used during construction, repairs, or alterations, that are beyond the normal permissible conditions in the workplace, or that would impede exiting the workplace. **1910.37(e)** ***An employee alarm system must be operable.*** Employers must install and maintain an operable employee alarm system that has a distinctive signal to warn employees of fire or other emergencies, unless employees can promptly see or smell a fire or other hazard in time to provide adequate warning to them. The employee alarm system must comply with § 1910.165.	Partial	Policy states emergency response procedures and evacuation procedures, however policy is too brief/high-level and is silent on many individual provisions of the regulation such as exit routes and written plans.	X			X	
	1910.38 - Emergency action plans.	**1910.38(a) Application.** An employer must have an emergency action plan whenever an OSHA standard in this part requires one. The requirements in this section apply to each such emergency action plan. **1910.38(b) Written and oral emergency action plans.** An emergency action plan must be in writing, kept in the workplace, and available to employees for review. However, an employer with 10 or fewer employees may communicate the plan orally to employees. **1910.38(c) Minimum elements of an emergency action plan.** An emergency action plan must include at a minimum: **1910.38(c)(1)** Procedures for reporting a fire or other emergency; **1910.38(c)(2)** Procedures for emergency evacuation, including type of evacuation and exit route assignments; **1910.38(c)(3)** Procedures to be followed by employees who remain to operate critical plant operations before they evacuate; **1910.38(c)(4)** Procedures to account for all employees after evacuation; **1910.38(c)(5)** Procedures to be followed by employees performing rescue or medical duties; and **1910.38(c)(6)** The name or job title of every employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan. **1910.38(d) Employee alarm system.** An employer must have and maintain an employee alarm system. The employee alarm system must use a distinctive signal for each purpose and comply with the requirements in § 1910.165.	Partial	Policy states emergency response procedures and evacuation procedures, however policy is too brief/high-level and is silent on many individual provisions of the regulation such as exit routes and written plans.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1910.67 - Vehicle-mounted elevating and rotating work platforms.	**1910.67(b)(1)** Unless otherwise provided in this section, aerial devices (aerial lifts) acquired on or after July 1, 1975, shall be designed and constructed in conformance with the applicable requirements of the American National Standard for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2—1969, including appendix, which is incorporated by reference as specified in §1910.6. Aerial lifts acquired for use before July 1, 1975 which do not meet the requirements of ANSI A92.2—1969, may not be used after July 1, 1976, unless they shall have been modified so as to conform with the applicable design and construction requirements of ANSI A92.2—1969. Aerial devices include the following types of vehicle-mounted aerial devices used to elevate personnel to jobsites above ground: (i) Extensible boom platforms, (ii) aerial ladders, (iii) articulating boom platforms, (iv) vertical towers, and (v) a combination of any of the above. Aerial equipment may be made of metal, wood, fiberglass reinforced plastic (FRP), or other material; may be powered or manually operated; and are deemed to be aerial lifts whether or not they are capable of rotating about a substantially vertical axis. **1910.67(b)(2)** Aerial lifts may be "field modified" for uses other than those intended by the manufacturer, provided the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in conformity with all applicable provisions of ANSI A92.2—1969 and this section, and to be at least as safe as the equipment was before modification. **1910.67(b)(4)** For operations near overhead electric lines, see §1910.333(c)(3). **1910.67(c)** *Specific requirements* — **1910.67(c)(1)** *Ladder trucks and tower truck s*. Before the truck is moved for highway travel, aerial ladders shall be secured in the lower traveling position by the locking device above the truck cab, and the manually operated device at the base of the ladder, or by other equally effective means (e.g., cradles which prevent rotation of the ladder in combination with positive acting linear actuators). **1910.67(c)(2)** *Extensible and articulating boom platforms* . **1910.67(c)(2)(i)** Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition. **1910.67(c)(2)(ii)** Only trained persons shall operate an aerial lift. **1910.67(c)(2)(iii)** Belting off to an adjacent pole, structure, or equipment while working from an aerial lift shall not be permitted. **1910.67(c)(2)(iv)** Employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position. **1910.67(c)(2)(v)** A personal fall arrest or travel restraint system that meets the requirements in subpart I of this part shall be worn and attached to the boom or basket when working from an aerial lift. **1910.67(c)(2)(vi)** Boom and basket load limits specified by the manufacturer shall not be exceeded. **1910.67(c)(2)(vii)** The brakes shall be set and outriggers, when used, shall be positioned on pads or a solid surface. Wheel chocks shall be installed before using an aerial lift on an incline. **1910.67(c)(2)(viii)** An aerial lift truck may not be moved when the boom is elevated in a working position with men in the basket, except for equipment which is specifically designed for this type of operation in accordance with the provisions of paragraphs (b)(1) and (b)(2) of this section. **1910.67(c)(2)(ix)** Articulating boom and extensible boom platforms, primarily designed as personnel carriers, shall have both platform (upper) and lower controls. Upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.	Partial	Policy states requirements for using mobile equipment on site, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements. References OSHA 29 CFR 1926 Subpart O.	X				
	1910.68 - Manlifts.	1910.68(b)(1) Application. This section applies to the construction, maintenance, inspection, and operation of manlifts in relation to accident hazards. Manlifts covered by this section consist of platforms or brackets and accompanying handholds mounted on, or attached to an endless belt, operating vertically in one direction only and being supported by, and driven through pulleys, at the top and bottom. These manlifts are intended for conveyance of persons only. It is not intended that this section cover moving stairways, elevators with enclosed platforms ("Paternoster" elevators), gravity lifts, nor conveyors used only for conveying material. This section applies to manlifts used to carry only personnel trained and authorized by the employer in their use. 1910.68(b)(2) Purpose. The purpose of this section is to provide reasonable safety for life and limb.1910.68(b)(3) Design requirements. All new manlift installations and equipment installed after the effective date of these regulations shall meet the design requirements of the "American National Safety Standard for Manlifts ANSI A90.1-1969", which is incorporated by reference as specified in §1910.6, and the requirements of this section. 1910.68(b)(4) Reference to other codes and subparts. The following codes and subparts of this part are applicable to this section: Safety Code for Mechanical Power Transmission Apparatus, ANSI B15.1-1953 (R 1958); Safety Code for Fixed Ladders, ANSI A14.3-1956; and subparts D, O, and S. The preceding ANSI standards are incorporated by reference as specified in §1910.6. 1910.68(b)(5) Floor openings— 1910.68(b)(5)(i) Allowable size. Floor openings for both the "up" and "down" runs shall be not less than 28 inches nor more than 36 inches in width for a 12-inch belt; not less than 34 inches nor more than 38 inches for a 14-inch belt; and not less than 36 inches nor more than 40 inches for a 16-inch belt and shall extend not less than 24 inches, nor more than 28 inches from the face of the belt. 1910.68(b)(5)(ii) Uniformity. All floor openings for a given manlift shall be uniform in size and shall be approximately circular, and each shall be located vertically above the opening below it. 1910.68(b)(6) Landing— 1910.68(b)(6)(i) Vertical clearance. The clearance between the floor or mounting platform and the lower edge for the conical guard above it required by subparagraph (7) of this paragraph shall not be less than 7 feet 6 inches. Where this clearance cannot be obtained no access to the manlift shall be provided and the manlift runway shall be enclosed where it passes through such floor. 1910.68(b)(6)(ii) Clear landing space. The landing space adjacent to the floor openings shall be free from obstruction and kept clear at all times. This landing space shall be at least 2 feet in width from the edge of the floor opening used for mounting and dismounting. 1910.68(b)(6)(iii) Lighting and landing. Adequate lighting, not less than 5-foot candles, shall be provided at each floor landing at all times when the lift is in operation. 1910.68(b)(6)(iv) Landing surface. The landing surfaces at the entrances and exits to the manlift shall be constructed and maintained as to provide safe footing at all times. 1910.68(b)(6)(v) Emergency landings. Where there is a travel of 50 feet or more between floor landings, one or more emergency landings shall be provided so that there will be a landing (either floor or emergency) for every 25 feet or less of manlift travel. 1910.68(b)(6)(v)(a) Emergency landings shall be accessible from both the "up" and "down" rungs of the manlift and shall give access to the ladder required in subparagraph (12) of this paragraph. 1910.68(b)(6)(v)(b) Emergency landings shall be completely enclosed with a standard railing and toeboard. 1910.68(b)(6)(v)(c) Platforms constructed to give access to bucket elevators or other equipment for the purpose of inspection, lubrication, and repair may also serve as emergency landings under this rule. All such platforms will then be considered part of the emergency landing and shall be provided with standard railings and toeboards. 1910.68(b)(7) Guards on underside of floor openings— 1910.68(b)(7)(i) Fixed type. On the ascending side of the manlift floor openings shall be provided with a bevel guard or cone meeting the following requirements: 1910.68(b)(7)(i)(a) The cone shall make an angle of not less than 45° with the horizontal. An angle of 60° or greater shall be used where ceiling heights permit. 1910.68(b)(7)(i)(b) The lower edge of this guard shall extend at least 42 inches outward from any handhold on the belt. It shall not extend beyond the upper surface of the floor above. 1910.68(b)(7)(i)(c) The cone shall be made of not less than No. 18 U.S. gauge sheet steel or material of equivalent strength or stiffness. The lower edge shall be rolled to a minimum diameter of one-half inch and the interior shall be smooth with no rivets, bolts or screws protruding.1910.68(b)(7)(ii) Floating type. In lieu of the fixed guards specified in subdivision (i) of this subparagraph a floating type safety cone may be used, such floating cones to be mounted on hinges at least 6 inches below the underside of the floor and so constructed as to actuate a limit switch should a force of 2 pounds be applied on the edge of the cone closest to the hinge. The depth of this floating cone need not exceed 12 inches. 1910.68(b)(8) Protection of entrances and exits— 1910.68(b)(8)(i) Guard rail requirement. The entrances and exits at all floor landings affording access to the manlift shall be guarded by a maze (staggered railing) or a handrail equipped with self-closing gates. 1910.68(b)(8)(ii) Construction. The rails shall be standard guardrails with toeboards that meet the requirements in subpart D of this part. 1910.68(b)(8)(iii) Gates. Gates, if used, shall open outward and shall be self-closing. Corners of gates shall be rounded. 1910.68(b)(8)(iv) Maze. Maze or staggered openings shall offer no direct passage between enclosure and outer floor space. 1910.68(b)(8)(v) Except where building layout prevents, entrances at all landings shall be in the same relative position. 1910.68(b)(9) Guards for openings— 1910.68(b)(9)(i) Construction. The floor opening at each landing shall be guarded on sides not used for entrance or exit by a wall, a railing and toeboard or by panels of wire mesh of suitable strength. 1910.68(b)(9)(ii) Height and location. Such rails or guards shall be at least 42 inches in height on the up-running side and 66 inches on the down-running side. 1910.68(b)(10) Bottom arrangement— 1910.68(b)(10)(i) Bottom landing. At the bottom landing the clear area shall be not smaller than the area enclosed by the guardrails on the floors above, and any wall in front of the down-running side of the belt shall be not less than 48 inches from the face of the belt. This space shall not be encroached upon by stairs or ladders. 1910.68(b)(10)(ii) Location of lower pulley. The lower (boot) pulley shall be installed so that it is supported by the lowest landing served. The sides of the pulley support shall be guarded to prevent contact with the pulley or the steps. 1910.68(b)(10)(iii) Mounting platform. A mounting platform shall be provided in front or to one side of the uprun at the lowest landing, unless the floor level is such that the following requirement can be met: The floor or platform shall be at or above the point at which the upper surface of the ascending step completes its turn and assumes a horizontal position. 1910.68(b)(10)(iv) Guardrails. To guard against persons walking under a descending step, the area on the downside of the manlift shall be guarded in accordance with subparagraph (8) of this paragraph. To guard against a person getting between the mounting platform and an ascending step, the area between the belt and the platform shall be protected by a guardrail. 1910.68(b)(11) Top arrangements— 1910.68(b)(11)(i) Clearance from floor. A top clearance shall be provided of at least 11 feet above the top terminal landing. This clearance shall be maintained from a plane through each face of the belt to a vertical cylindrical plane having a diameter 2 feet greater than the diameter of the floor opening, extending upward from the top floor to the ceiling on the up-running side of the belt. No encroachment of structural or machine supporting members within this space will be permitted. 1910.68(b)(11)(ii) Pulley clearance. 1910.68(b)(11)(ii)(a) There shall be a clearance of at least 5 feet between the center of the head pulley shaft and any ceiling obstruction. 1910.68(b)(11)(ii)(b) The center of the head pulley shaft shall be not less than 6 feet above the top terminal landing. 1910.68(b)(11)(iii) Emergency grab rail. An emergency grab bar or rail and platform shall be provided at the head pulley when the distance to the head pulley is over 6 feet above the top landing, otherwise only a grab bar or rail is to be provided to permit the rider to swing free should the emergency stops become inoperative. 1910.68(b)(12) Emergency exit ladder. A fixed metal ladder accessible from both the "up" and "down" run of the manlift shall be provided for the entire travel of the manlift. Such ladders shall meet the requirements in subpart D of this part. 1910.68(b)(13) Superstructure bracing. Manlift rails shall be secured in such a manner as to avoid spreading, vibration, and misalignment. 1910.68(b)(14) Illumination— 1910.68(b)(14)(i) General. Both runs of the manlift shall be illuminated at all times when the lift is in operation. An intensity of not less than 1-foot candle shall be maintained at all points. (However, see subparagraph (6)(iii) of this paragraph for illumination requirements at landings.) 1910.68(b)(14)(ii) Control of illumination. Lighting of manlift runways shall be by means of circuits permanently tied in to the building circuits (no switches), or shall be controlled by switches at each landing. Where separate switches are provided at each landing, any switch shall turn on all lights necessary to illuminate the entire runway. 1910.68(b)(15) Weather protection. The entire manlift and its driving mechanism shall be protected from the weather at all times. 1910.68(c) Mechanical requirements— 1910.68(c)(1) Machines, general— 1910.68(c)(1)(i) Brakes. Brakes provided for stopping and holding a manlift shall be inherently self-engaging, by requiring power or force from an external source to cause disengagement. The brake shall be electrically released, and shall be applied to the motor shaft for direct-connected units or to the input shaft for belt-driven units. The brake shall be capable of stopping and holding the manlift when the descending side is loaded with 250 lb on each step. 1910.68(c)(1)(ii) Belt. 1910.68(c)(1)(ii)(a) The belts shall be of hard-woven canvas, rubber-coated canvas, leather, or other material meeting the strength requirements of paragraph (b)(3) of this section and having a coefficient of friction such that when used in conjunction with an adequate tension device it will meet the brake test specified in subdivision (i) of this subparagraph. 1910.68(c)(1)(ii)(b) The width of the belt shall be not less than 12 inches for a travel not exceeding 100 feet, not less than 14 inches for a travel greater than 100 feet but not exceeding 150 feet and 16 inches for a travel exceeding 150 feet. 1910.68(c)(1)(ii)(c) A belt that has become torn while in use on a manlift shall not be spliced and put back in service. 1910.68(c)(2) Speed— 1910.68(c)(2)(i) Maximum speed. No manlift designed for a speed in excess of 80 feet per minute shall be installed. 1910.68(e) Periodic inspection— 1910.68(e)(1) Frequency. All manlifts shall be inspected by a competent designated person at intervals of not more than 30 days. Limit switches shall be checked weekly. Manlifts found to be unsafe shall not be operated until properly repaired. 1910.68(e)(3) Inspection record. A certification record shall be kept of each inspection which includes the date of the inspection, the signature of the person who performed the inspection and the serial number, or other identifier, of the manlift which was inspected. This record of inspection shall be made available to the Assistant Secretary of Labor or a duly authorized representative. 1910.23(b)(1) Ladder rungs, steps, and cleats are parallel, level, and uniformly spaced when the ladder is in position for use;	Partial	Policy states requirements for using mobile equipment on site, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements. References OSHA 29 CFR 1926 Subpart O.	X				
.0 Subpart G - cupational Health l Environmental trol									
	1910.95 - Occupational noise exposure.	**1910.95(a)** Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table G-16 when measured on the A scale of a standard sound level meter at slow response. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined as follows: Equivalent sound level contours. Octave band sound pressure levels may be converted to the equivalent A-weighted sound level by plotting them on this graph and noting the A-weighted sound level corresponding to the point of highest penetration into the sound level contours. This equivalent A-weighted sound level, which may differ from the actual A-weighted sound level of the noise, is used to determine exposure limits from Table 1.G-16.	Partial	Policy requires hearing protection in high noise areas, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements and a written Hearing Conservation program.	X				
5 Subpart D - cupational Health l Environmental trols									
	1926.50 - Medical services and first aid.	**1926.50(a)** The employer shall ensure the availability of medical personnel for advice and consultation on matters of occupational health. **1926.50(b)** Provisions shall be made prior to commencement of the project for prompt medical attention in case of serious injury. **1926.50(c)** In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.	Partial	Policy states some guidelines for first aid, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
.0 Subpart H - ardous Materials									

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1910.101 - Compressed gases (general requirements).	**1910.101(a)** "Inspection of compressed gas cylinders." Each employer shall determine that compressed gas cylinders under his control are in a safe condition to the extent that this can be determined by visual inspection. Visual and other inspections shall be conducted as prescribed in the Hazardous Materials Regulations of the Department of Transportation (49 CFR parts 171-179 and 14 CFR part 103). Where those regulations are not applicable, visual and other inspections shall be conducted in accordance with Compressed Gas Association Pamphlets C-6-1968 and C-8-1962, which is incorporated by reference as specified in Sec. 1910.6. **1910.101(b)** "Compressed gases." The in-plant handling, storage, and utilization of all compressed gases in cylinders, portable tanks, rail tankcars, or motor vehicle cargo tanks shall be in accordance with Compressed Gas Association Pamphlet P-1-1965, which is incorporated by reference as specified in Sec. 1910.6. **1910.101(c)** "Safety relief devices for compressed gas containers." Compressed gas cylinders, portable tanks, and cargo tanks shall have pressure relief devices installed and maintained in accordance with Compressed Gas Association Pamphlets S-1.1-1963 and 1965 addenda and S-1.2-1963, which is incorporated by reference as specified in Sec. 1910.6.	Partial	Policy states some guidelines for work with compressed gas/air, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.102 - Acetylene.	**1910.102(a)** Cylinders. Employers must ensure that the in-plant transfer, handling, storage, and use of acetylene in cylinders comply with the provisions of CGA Pamphlet G-1-2009 ("Acetylene") (incorporated by reference, see § 1910.6).	Partial	Policy states some guidelines for work with compressed gas/air, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.106 - Flammable liquids.	**1910.106(d)(1)(i)** "General." This paragraph shall apply only to the storage of flammable liquids in drums or other containers (including flammable aerosols) not exceeding 60 gallons individual capacity and those portable tanks not exceeding 660 gallons individual capacity. **1910.106(d)(1)(ii)** "Exceptions." This paragraph shall not apply to the following: **1910.106(d)(1)(ii)(a)** Storage of containers in bulk plants, service stations, refineries, chemical plants, and distilleries; **1910.106(d)(1)(ii)(b)** Category 1, 2, or 3 flammable liquids in the fuel tanks of a motor vehicle, aircraft, boat, or portable or stationary engine; **1910.106(d)(1)(ii)(c)** flammable paints, oils, varnishes, and similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days; **1910.106(d)(1)(ii)(d)** Beverages when packaged in individual containers not exceeding 1 gallon in size. **1910.106(d)(2)** "Design, construction, and capacity of containers" - **1910.106(d)(2)(i)** "General." Only approved containers and portable tanks shall be used. Metal containers and portable tanks meeting the requirements of and containing products authorized by chapter I, title 49 of the Code of Federal Regulations (regulations issued by the Hazardous Materials Regulations Board, Department of Transportation), shall be deemed to be acceptable. **1910.106(d)(2)(ii)** "Emergency venting." Each portable tank shall be provided with one or more devices installed in the top with sufficient emergency venting capacity to limit internal pressure under fire exposure conditions to 10 p.s.i.g., or 30 percent of the bursting pressure of the tank, whichever is greater. The total venting capacity shall be not less than that specified in paragraphs (b)(2)(v) (c) or (e) of this section. At least one pressure-activated vent having a minimum capacity of 6,000 cubic feet of free air (14.7 p.s.i.a. and 60 deg. F.) shall be used. It shall be set to open at not less than 5 p.s.i.g. If fusible vents are used, they shall be actuated by elements that operate at a temperature not exceeding 300 deg. F. **1910.106(d)(2)(iii)** *Size* . Flammable liquid containers shall be in accordance with Table H-12, except that glass or plastic containers of no more than 1-gallon capacity may be used for a Category 1 or 2 flammable liquid if: **1910.106(d)(2)(iii)(a)(1)** Such liquid either would be rendered unfit for its intended use by contact with metal or would excessively corrode a metal container so as to create a leakage hazard; and **1910.106(d)(2)(iii)(a)(2)** The user's process either would require more than 1 pint of a Category 1 flammable liquid or more than 1 quart of a Category 2 flammable liquid of a single assay lot to be used at one time, or would require the maintenance of an analytical standard liquid of a quality which is not met by the specified standards of liquids available, and the quantity of the analytical standard liquid required to be used in any one control process exceeds one-sixteenth the capacity of the container allowed under Table H-12 for the category of liquid;	Partial	Policy states some guidelines for work with flammable liquids, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.110 - Storage and handling of liquefied petroleum gases.	**1910.110(b)(1)** Odorizing gases. **1910.110(b)(1)(i)** All liquefied petroleum gases shall be effectively odorized by an approved agent of such character as to indicate positively, by distinct odor, the presence of gas down to concentration in air of not over one-fifth the lower limit of flammability. Odorization, however, is not required if harmful in the use of further processing of the liquefied petroleum gas, or if odorization will serve no useful purpose as a warning agent in such use or further processing. **1910.110(b)(1)(ii)** The odorization requirement of paragraph (b)(1)(i) of this section shall be considered to be met by the use of 1.0 pounds of ethyl mercaptan, 1.0 pounds of thiophane or 1.4 pounds of amyl mercaptan per 10,000 gallons of LP-Gas. However, this listing of odorants and quantities shall not exclude the use of other odorants that meet the odorization requirements of paragraph (b)(1)(i) of this section. **1910.110(b)(2)** Approval of equipment and systems. **1910.110(b)(2)(i)** Each system utilizing DOT containers in accordance with 49 CFR Part 178 shall have its container valves, connectors, manifold valve assemblies, and regulators approved. **1910.110(b)(2)(ii)** Each system for domestic or commercial use utilizing containers of 2,000 gallons or less water capacity, other than those constructed in accordance with 49 CFR Part 178, shall consist of a container assembly and one or more regulators, and may include other parts. The system as a unit or the container assembly as a unit, and the regulator or regulators, shall be individually listed. **1910.110(b)(2)(iii)** In systems utilizing containers of over 2,000 gallons water capacity, each regulator, container valve, excess flow valve, gaging device, and relief valve installed on or at the container, shall have its correctness as to design, construction, and performance determined by listing by a nationally recognized testing laboratory. Refer to 1910.7 for definition of nationally recognized testing laboratory. **1910.110(b)(3)** Requirements for construction and original test of containers. **1910.110(b)(3)(i)** Containers used with systems embodied in paragraphs (d), (e), (g), and (h) of this section, except as provided in paragraphs (e)(3)(iii) and (g)(2)(i) of this section, shall be designed, constructed, and tested in accordance with the Rules for Construction of Unfired Pressure Vessels, section VIII, Division 1, American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, 1968 edition, which is incorporated by reference as specified in Sec. 1910.6. **1910.110(b)(3)(ii)** Containers constructed according to the 1949 and earlier editions of the ASME Code do not have to comply with paragraphs U-2 through U-10 and U-19 thereof. Containers constructed according to paragraph U-70 in the 1949 and earlier editions are not authorized. **1910.110(b)(3)(iii)** Containers designed, constructed, and tested prior to July 1, 1961, according to the Code for Unfired Pressure Vessels for Petroleum Liquids and Gases, 1951 edition with 1954 Addenda, of the American Petroleum Institute and the American Society of Mechanical Engineers, which is incorporated by reference as specified in Sec. 1910.6, shall be considered in conformance. Containers constructed according to API-ASME Code do not have to comply with section I or with appendix to section I. Paragraphs W-601 to W-606 inclusive in the 1943 and earlier editions do not apply. **1910.110(b)(3)(iv)** The provisions of paragraph (b)(3)(i) of this section shall not be construed as prohibiting the continued use or reinstallation of containers constructed and maintained in accordance with the standard for the Storage and Handling of Liquefied Petroleum Gases NFPA No. 58 in effect at the time of fabrication. **1910.110(b)(3)(v)** Containers used with systems embodied in paragraph (b), (d)(3)(iii), and (f) of this section, shall be constructed, tested, and stamped in accordance with DOT specifications effective at the date of their manufacture.	Partial	Policy states some guidelines for work with liquefied petroleum gas, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.120 - Hazardous waste operations and emergency response.	**1910.120(a)(1)** *Scope* . This section covers the following operations, unless the employer can demonstrate that the operation does not involve employee exposure or the reasonable possibility for employee exposure to safety or health hazards: **1910.120(a)(1)(i)** Clean-up operations required by a governmental body, whether Federal, state local or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites (including, but not limited to, the EPA's National Priority Site List (NPL), state priority site lists, sites recommended for the EPA NPL, and initial investigations of government identified sites which are conducted before the presence or absence of hazardous substances has been ascertained); **1910.120(a)(1)(ii)** Corrective actions involving clean-up operations at sites covered by the Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 U.S.C. 6901 *et seq*); **1910.120(a)(1)(iii)** Voluntary clean-up operations at sites recognized by Federal, state, local or other governmental bodies as uncontrolled hazardous waste sites; **1910.120(a)(1)(iv)** Operations involving hazardous waste that are conducted at treatment, storage, disposal (TSD) facilities regulated by 40 CFR Parts 264 and 265 pursuant to RCRA; or by agencies under agreement with U.S.E.P.A. to implement RCRA regulations; and **1910.120(a)(1)(v)** Emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.	Partial	Policy states some guidelines for work around hazardous waste clean up, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.120 App A - Personal protective equipment test methods.	This appendix sets forth the non-mandatory examples of tests which may be used to evaluate compliance with paragraphs 1910.120(g)(4) (ii) and (iii). Other tests and other challenge agents may be used to evaluate compliance.	Partial	Policy states some guidelines for work around hazardous waste clean up, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.120 App B - General description and discussion of the levels of protection and protective gear.	This appendix sets forth information about personal protective equipment (PPE) protection levels which may be used to assist employers in complying with the PPE requirements of this section.	Partial	Policy states some guidelines for work around hazardous waste clean up, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.120 App C - Compliance guidelines.	Compliance Guidelines	Partial	Policy states some guidelines for work around hazardous waste clean up, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.120 App D - References.	References	Partial	Policy states some guidelines for work around hazardous waste clean up, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.120 App E - Training Curriculum Guidelines - (Non-mandatory)		Partial	Policy states some guidelines for work around hazardous waste clean up, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
.0 Subpart I - sonal Protective ılpment									
	1910.132 - General requirements.	**1910.132(a)** Application. Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact. **1910.132(b)** Employee-owned equipment. Where employees provide their own protective equipment, the employer shall be responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment. **1910.132(c)** Design. All personal protective equipment shall be of safe design and construction for the work to be performed. **1910.132(d)** Hazard assessment and equipment selection. **1910.132(d)(1)** The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present, the employer shall: **1910.132(d)(1)(i)** Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment; **1910.132(d)(1)(ii)** Communicate selection decisions to each affected employee; and, **1910.132(d)(1)(iii)** Select PPE that properly fits each affected employee. Note: Non-mandatory appendix B contains an example of procedures that would comply with the requirement for a hazard assessment. **1910.132(d)(2)** The employer shall verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment. **1910.132(e)** Defective and damaged equipment. Defective or damaged personal protective equipment shall not be used.	Partial	Policy states guidelines for selection and use of PPE, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1910.133 - Eye and face protection.	1910.133(a)(1) The employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation. 1910.133(a)(2) The employer shall ensure that each affected employee uses eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors (e.g. clip-on or slide-on side shields) meeting the pertinent requirements of this section are acceptable. 1910.133(a)(3) The employer shall ensure that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards wears eye protection that incorporates the prescription in its design, or wears eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses. 1910.133(a)(4) Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer. 1910.133(b) Criteria for protective eye and face protection. 1910.133(b)(1) Protective eye and face protection devices must comply with any of the following consensus standards: 1910.133(b)(1)(i) ANSI/ISEA Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1910.6; 1910.133(b)(1)(ii) ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1910.6; or 1910.133(b)(1)(iii) ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection, incorporated by reference in § 1910.6; 1910.133(b)(2) Protective eye and face protection devices that the employer demonstrates are at least as effective as protective eye and face protection devices that are constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.	Partial	Policy states guidelines for selection and use of PPE, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.134 - Respiratory Protection.	1910.134(a)(1) In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section. 1910.134(a)(2) A respirator shall be provided to each employee when such equipment is necessary to protect the health of such employee. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program, which shall include the requirements outlined in paragraph (c) of this section. The program shall cover each employee required by this section to use a respirator. 1910.134(c)Respiratory protection program. This paragraph requires the employer to develop and implement a written respiratory protection program with required worksite-specific procedures and elements for required respirator use. The program must be administered by a suitably trained program administrator. In addition, certain program elements may be required for voluntary use to prevent potential hazards associated with the use of the respirator. 1910.134(c)(1) In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, the employer shall establish and implement a written respiratory protection program with worksite-specific procedures. The program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use. The employer shall include in the program the following provisions of this section, as applicable: 1910.134(c)(1)(i) Procedures for selecting respirators for use in the workplace; 1910.134(c)(1)(ii) Medical evaluations of employees required to use respirators; 1910.134(c)(1)(iii) Fit testing procedures for tight-fitting respirators; 1910.134(c)(1)(iv) Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations; 1910.134(c)(1)(v) Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators; 1910.134(c)(1)(vi) Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators;	Partial	Currently the respiratory protection program is in abeyance. Policy will need more information on many individual provisions of the regulation if it will be continued.	X				
	1910.134 App A - Fit Testing Procedures (Mandatory).	Part I. OSHA-Accepted Fit Test Protocols (Mandatory)	No	Currently the respiratory protection program is in abeyance. Policy will need more information on many individual provisions of the regulation if it will be continued.	X				
	1910.134 App B-1 - User Seal Check Procedures (Mandatory).	**Appendix B-1 to § 1910.134:** User Seal Check Procedures (Mandatory) The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed in this appendix, or the respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.	Partial	Currently the respiratory protection program is in abeyance. Policy will need more information on many individual provisions of the regulation if it will be continued.	X				
	1910.134 App B-2 - Respirator Cleaning Procedures (Mandatory).	**Appendix B-2 to § 1910.134:** Respirator Cleaning Procedures (Mandatory) These procedures are provided for employer use when cleaning respirators. They are general in nature, and the employer as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed here in Appendix B-2. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in Appendix B-2, i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.	Partial	Currently the respiratory protection program is in abeyance. Policy will need more information on many individual provisions of the regulation if it will be continued.	X				
	1910.134 App C - OSHA Respirator Medical Evaluation Questionnaire (Mandatory).	Appendix C to Sec. 1910.134: OSHA Respirator Medical Evaluation Questionnaire (Mandatory)	No	Currently the respiratory protection program is in abeyance. Policy will need more information on many individual provisions of the regulation if it will be continued.	X				
	1910.134 App D - (Mandatory) Information for Employees Using Respirators When not Required Under Standard.	n/a	Partial	Currently the respiratory protection program is in abeyance. Policy will need more information on many individual provisions of the regulation if it will be continued. Is there a voluntary use policy for respirators?	X				
	1910.135 - Head protection.	**1910.135(b)** Criteria for head protection. **1910.135 (b)(1)** Criteria for head protection. (1) Head protection must comply with any of the following consensus standards: **1910.135(b)(1)(i)** American National Standards Institute (ANSI) Z89.1-2009, "American National Standard for Industrial Head Protection," incorporated by reference in Sec. 1910.6; **1910.135(b)(1)(ii)** American National Standards Institute (ANSI) Z89.1-2003, "American National Standard for Industrial Head Protection," incorporated by reference in Sec. 1910.6; or **1910.135(b)(1)(iii)** American National Standards Institute (ANSI) Z89.1-1997, "American National Standard for Personnel Protection--Protective Headwear for Industrial Workers--Requirements," incorporated by reference in Sec. 1910.6. **1910.135(b)(2)** Head protection devices that the employer demonstrates are at least as effective as head protection devices that are constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.	Partial	Policy states guidelines for selection and use of PPE, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.136 - Foot protection.	**1910.136(a)** General requirements. The employer shall ensure that each affected employee uses protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, or when the use of protective footwear will protect the affected employee from an electrical hazard, such as a static-discharge or electric-shock hazard, that remains after the employer takes other necessary protective measures. **1910.136(b)** Criteria for protective footwear. **1910.136(b)(1)** Protective footwear must comply with any of the following consensus standards: **1910.136(b)(1)(i)** ASTM F-2412-2005, "Standard Test Methods for Foot Protection," and ASTM F-2413-2005, "Standard Specification for Performance Requirements for Protective Footwear," which are incorporated by reference in § 1910.6; **1910.136(b)(1)(ii)** ANSI Z41-1999, "American National Standard for Personal Protection -- Protective Footwear," which is incorporated by reference in § 1910.6; or **1910.136(b)(1)(iii)** ANSI Z41-1991, "American National Standard for Personal Protection -- Protective Footwear," which is incorporated by reference in § 1910.6. **1910.136(b)(2)** Protective footwear that the employer demonstrates is at least as effective as protective footwear that is constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.	Partial	Policy states guidelines for selection and use of PPE, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.137 - Electrical Protective Equipment.	**1910.137(a)** *Design requirements for specific types of electrical protective equipment* . Rubber insulating blankets, rubber insulating matting, rubber insulating covers, rubber insulating line hose, rubber insulating gloves, and rubber insulating sleeves shall meet the following requirements: **1910.137(a)(1)** *Manufacture and marking of rubber insulating equipment.* **1910.137(a)(1)(i)** Blankets, gloves, and sleeves shall be produced by a seamless process. **1910.137(a)(1)(ii)** Each item shall be clearly marked as follows: **1910.137(a)(1)(ii)(A)** Class 00 equipment shall be marked Class 00. **1910.137(a)(1)(ii)(B)** Class 0 equipment shall be marked Class 0. **1910.137(a)(1)(ii)(C)** Class 1 equipment shall be marked Class 1. **1910.137(a)(1)(ii)(D)** Class 2 equipment shall be marked Class 2. **1910.137(a)(1)(ii)(E)** Class 3 equipment shall be marked Class 3. **1910.137(a)(1)(ii)(F)** Class 4 equipment shall be marked Class 4 **1910.137(a)(1)(ii)(G)** Nonozone-resistant equipment shall be marked Type I. **1910.137(a)(1)(ii)(H)** Ozone-resistant equipment shall be marked Type II. **1910.137(a)(1)(ii)(I)** Other relevant markings, such as the manufacturer's identification and the size of the equipment, may also be provided. **1910.137(a)(1)(iii)** Markings shall be nonconducting and shall be applied in such a manner as not to impair the insulating qualities of the equipment. **1910.137(a)(1)(iv)** Markings on gloves shall be confined to the cuff portion of the glove.	Partial	Policy states guidelines for selection and use of PPE, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.138 - Hand Protection.	**1910.138(a)** General requirements. Employers shall select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes. **1910.138(b)** Selection. Employers shall base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified.	Partial	Policy states guidelines for selection and use of PPE, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.140 - Personal fall protection systems.	From the HASP "Except where more stringent requirements may exist, fall protection shall be in accordance with OSHA **29 CFR 1926 Subpart M."**	Partial	Policy states guidelines for use of fall protection, however the policy is too brief/high-level and is silent on some individual provisions of the regulation. References OSHA 29 CFR 1926 subpart M	X				
	1926.106 - Working over or near water.	**1926.106(a)** Employees working over or near water, where the danger of drowning exists, shall be provided with U.S. Coast Guard-approved life jacket or buoyant work vests. **1926.106(b)** Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used. **1926.106(c)** Ring buoys with at least 90 feet of line shall be provided and readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet. **1926.106(d)** At least one lifesaving skiff shall be immediately available at locations where employees are working over or adjacent to water.	Partial	Policy states procedures for working around water including use of a Coast Guard approved life vest, however policy is too brief/high-level and is silent on many individual provisions of the regulation including specific device inspections requirements.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1910.141 - Sanitation.	**1910.141(a)(3)** Housekeeping. **1910.141(a)(3)(i)** All places of employment shall be kept clean to the extent that the nature of the work allows. **1910.141(a)(3)(ii)** The floor of every workroom shall be maintained, so far as practicable, in a dry condition. Where wet processes are used, drainage shall be maintained and false floors, platforms, mats, or other dry standing places shall be provided, where practicable, or appropriate waterproof footgear shall be provided. **1910.141(a)(3)(iii)** To facilitate cleaning, every floor, working place, and passageway shall be kept free from protruding nails, splinters, loose boards, and unnecessary holes and openings. **1910.141(a)(4)** Waste disposal. **1910.141(a)(4)(i)** Any receptacle used for putrescible solid or liquid waste or refuse shall be so constructed that it does not leak and may be thoroughly cleaned and maintained in a sanitary condition. Such a receptacle shall be equipped with a solid tight-fitting cover, unless it can be maintained in a sanitary condition without a cover. This requirement does not prohibit the use of receptacles which are designed to permit the maintenance of a sanitary condition without regard to the aforementioned requirements. **1910.141(a)(4)(ii)** All sweepings, solid or liquid wastes, refuse, and garbage shall be removed in such a manner as to avoid creating a menace to health and as often as necessary or appropriate to maintain the place of employment in a sanitary condition. **1910.141(a)(5)** Vermin control. Every enclosed workplace shall be so constructed, equipped, and maintained, so far as reasonably practicable, as to prevent the entrance or harborage of rodents, insects, and other vermin. A continuing and effective extermination program shall be instituted where their presence is detected. **1910.141(b)** Water supply. **1910.141(b)(1)** Potable water. **1910.141(b)(1)(i)** Potable water shall be provided in all places of employment, for drinking, washing of the person, cooking, washing of foods, washing of cooking or eating utensils, washing of food preparation or processing premises, and personal service rooms. **1910.141(b)(1)(iii)** Portable drinking water dispensers shall be designed, constructed, and serviced so that sanitary conditions are maintained, shall be capable of being closed, and shall be equipped with a tap. **1910.141(b)(1)(v)** Open containers such as barrels, pails, or tanks for drinking water from which the water must be dipped or poured, whether or not they are fitted with a cover, are prohibited. **1910.141(b)(1)(vi)** A common drinking cup and other common utensils are prohibited. **1910.141(b)(2)** Nonpotable water. **1910.141(b)(2)(i)** Outlets for nonpotable water, such as water for industrial or firefighting purposes, shall be posted or otherwise marked in a manner that will indicate clearly that the water is unsafe and is not to be used for drinking, washing of the person, cooking, washing of food, washing of cooking or eating utensils, washing of food preparation or processing premises, or personal service rooms, or for washing clothes. **1910.141(b)(2)(ii)** Construction of nonpotable water systems or systems carrying any other nonpotable substance shall be such as to prevent backflow or backsiphonage into a potable water system. **1910.141(b)(2)(iii)** Nonpotable water shall not be used for washing any portion of the person, cooking or eating utensils, or clothing. Nonpotable water may be used for cleaning work premises, other than food processing and preparation premises and personal service rooms: Provided, That this nonpotable water does not contain concentrations of chemicals, fecal coliform, or other substances which could create unsanitary conditions or be harmful to employees. **1910.141(c)** Toilet facilities. **1910.141(c)(1)** General. **1910.141(c)(1)(i)** Except as otherwise indicated in this paragraph (c)(1)(i), toilet facilities, in toilet rooms separate for each sex, shall be provided in all places of employment in accordance with table J-1 of this section. The number of facilities to be provided for each sex shall be based on the number of employees of that sex for whom the facilities are furnished. Where toilet rooms will be occupied by no more than one person at a time, can be locked from the inside, and contain at least one water closet, separate toilet rooms for each sex need not be provided. Where such single-occupancy rooms have more than one toilet facility, only one such facility in each toilet room shall be counted for the purpose of table J-1. **1910.141(c)(1)(ii)** The requirements of paragraph (c)(1)(i) of this section do not apply to mobile crews or to normally unattended work locations so long as employees working at these locations have transportation immediately available to nearby toilet facilities which meet the other requirements of this subparagraph. **1910.141(c)(1)(iii)** The sewage disposal method shall not endanger the health of employees. **1910.141(c)(2)** Construction of toilet rooms. **1910.141(c)(2)(i)** Each water closet shall occupy a separate compartment with a door and walls or partitions between fixtures sufficiently high to assure privacy. **1910.141(d)** Washing facilities. **1910.141(d)(1)** General. Washing facilities shall be maintained in a sanitary condition. **1910.141(d)(2)** Lavatories. **1910.141(d)(2)(i)** Lavatories shall be made available in all places of employment. The requirements of this subdivision do not apply to mobile crews or to normally unattended work locations if employees working at these locations have transportation readily available to nearby washing facilities which meet the other requirements of this paragraph. **1910.141(d)(2)(ii)** Each lavatory shall be provided with hot and cold running water, or tepid running water. **1910.141(d)(2)(iii)** Hand soap or similar cleansing agents shall be provided. **1910.141(d)(2)(iv)** Individual hand towels or sections thereof, of cloth or paper, air blowers or clean individual sections of continuous cloth toweling, convenient to the lavatories, shall be provided. **1910.141(d)(3)** Showers. **1910.141(d)(3)(i)** Whenever showers are required by a particular standard, the showers shall be provided in accordance with paragraphs (d)(3)(ii) through (v) of this section. **1910.141(d)(3)(ii)** One shower shall be provided for each 10 employees of each sex, or numerical fraction thereof, who are required to shower during the same shift. **1910.141(d)(3)(iii)** Body soap or other appropriate cleansing agents convenient to the showers shall be provided as specified in paragraph (d)(2)(iii) of this section. **1910.141(d)(3)(iv)** Showers shall be provided with hot and cold water feeding a common discharge line. **1910.141(d)(3)(v)** Employees who use showers shall be provided with individual clean towels. **1910.141(e)** Change rooms. Whenever employees are required by a particular standard to wear protective clothing because of the possibility of contamination with toxic materials, change rooms equipped with storage facilities for street clothes and separate storage facilities for the protective clothing shall be provided. **1910.141(f)** Clothes drying facilities. Where working clothes are provided by the employer and become wet or are washed between shifts, provision shall be made to insure that such clothing is dry before reuse. **1910.141(g)** Consumption of food and beverages on the premises. **1910.141(g)(1)** Application. This paragraph shall apply only where employees are permitted to consume food or beverages, or both, on the premises.**1910.141(g)(2)** Eating and drinking areas. No employee shall be allowed to consume food or beverages in a toilet room nor in any area exposed to a toxic material. **1910.141(g)(3)** Waste disposal containers. Receptacles constructed of smooth, corrosion resistant, easily cleanable, or disposable materials, shall be provided and used for the disposal of waste food. The number, size, and location of such receptacles shall encourage their use and not result in overfilling. They shall be emptied not less frequently than once each working day, unless unused, and shall be maintained in a clean and sanitary condition. Receptacles shall be provided with a solid tight-fitting cover unless sanitary conditions can be maintained without use of a cover. **1910.141(g)(4)** Sanitary storage. No food or beverages shall be stored in toilet rooms or in an area exposed to a toxic material. **1910.141(h)** Food handling. All employee food service facilities and operations shall be carried out in accordance with sound hygienic principles. In all places of employment where all or part of the food service is provided, the food dispensed shall be wholesome, free from spoilage, and shall be processed, prepared, handled, and stored in such a manner as to be protected against contamination.	Partial	Policy requires a clean an orderly work environment however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.51 - Sanitation.	**1926.51(a)(1)** An adequate supply of potable water shall be provided in all places of employment. **1926.51(a)(2)** Portable containers used to dispense drinking water shall be capable of being tightly closed, and equipped with a tap. Water shall not be dipped from containers. **1926.51(a)(3)** Any container used to distribute drinking water shall be clearly marked as to the nature of its contents and not used for any other purpose. **1926.51(a)(4)** The common drinking cup is prohibited. **1926.51(a)(5)** Where single service cups (to be used but once) are supplied, both a sanitary container for the unused cups and a receptacle for disposing of the used cups shall be provided. **1926.51(a)(6)** *Potable water* means water that meets the standards for drinking purposes of the State or local authority having jurisdiction, or water that meets the quality standards prescribed by the U.S. Environmental Protection Agency's National Primary Drinking Water Regulations (40 CFR part 141). **1926.51(b)** *Nonpotable water*. **1926.51(b)(1)** Outlets for nonpotable water, such as water for industrial or firefighting purposes only, shall be identified by signs meeting the requirements of Subpart G of this part, to indicate clearly that the water is unsafe and is not to be used for drinking, washing, or cooking purposes. **1926.51(b)(2)** There shall be no cross-connection, open or potential, between a system furnishing potable water and a system furnishing nonpotable water. **1926.51(c)** "Toilets at construction jobsites." Table D-1 **1926.51(c)(2)** Under temporary field conditions, provisions shall be made to assure not less than one toilet facility is available. **1926.51(c)(3)** Job sites, not provided with a sanitary sewer, shall be provided with one of the following toilet facilities unless prohibited by local codes: **1926.51(c)(3)(i)** Privies (where their use will not contaminate ground or surface water); **1926.51(c)(3)(ii)** Chemical toilets; **1926.51(c)(3)(iii)** Recirculating toilets; **1926.51(c)(3)(iv)** Combustion toilets. **1926.51(c)(4)** The requirements of this paragraph (c) for sanitation facilities shall not apply to mobile crews having transportation readily available to nearby toilet facilities. **1926.51(d)** *Food handling*. **1926.51(d)(1)** All employees' food service facilities and operations shall meet the applicable laws, ordinances, and regulations of the jurisdictions in which they are located. **1926.51(d)(2)** All employee food service facilities and operations shall be carried out in accordance with sound hygienic principles. In all places of employment where all or part of the food service is provided, the food dispensed shall be wholesome, free from spoilage, and shall be processed, prepared, handled, and stored in such a manner as to be protected against contamination. **1926.51(e)** *Temporary sleeping quarters*. When temporary sleeping quarters are provided, they shall be heated, ventilated, and lighted. **1926.51(f)** *Washing facilities*. **1926.51(f)(1)** The employer shall provide adequate washing facilities for employees engaged in the application of paints, coating, herbicides, or insecticides, or in other operations where contaminants may be harmful to the employees. Such facilities shall be in near proximity to the worksite and shall be so equipped as to enable employees to remove such substances. **1926.51(f)(2)** *General*. Washing facilities shall be maintained in a sanitary condition. **1926.51(f)(3)** *Lavatories*. **1926.51(f)(3)(i)** Lavatories shall be made available in all places of employment. The requirements of this subdivision do not apply to mobile crews or to normally unattended work locations if employees working at these locations have transportation readily available to nearby washing facilities which meet the other requirements of this paragraph. **1926.51(f)(3)(ii)** Each lavatory shall be provided with hot and cold running water, or tepid running water. **1926.51(f)(3)(iii)** Hand soap or similar cleansing agents shall be provided. **1926.51(f)(3)(iv)** Individual hand towels or sections thereof, of cloth or paper, air blowers or clean individual sections of continuous cloth toweling, convenient to the lavatories, shall be provided. **1926.51(f)(4)** *Showers*. **1926.51(f)(4)(i)** Whenever showers are required by a particular standard, the showers shall be provided in accordance with paragraphs (f)(4)(ii) through (v) of this section. **1926.51(f)(4)(ii)** One shower shall be provided for each 10 employees of each sex, or numerical fraction thereof, who are required to shower during the same shift. **1926.51(f)(4)(iii)** Body soap or other appropriate cleansing agents convenient to the showers shall be provided as specified in paragraph (f)(3)(iii) of this section. **1926.51(f)(4)(iv)** Showers shall be provided with hot and cold water feeding a common discharge line. **1926.51(f)(4)(v)** Employees who use showers shall be provided with individual clean towels. **1926.51(g)** *Eating and drinking areas*. No employee shall be allowed to consume food or beverages in a toilet room nor in any area exposed to a toxic material. **1926.51(h)** *Vermin control*. Every enclosed workplace shall be so constructed, equipped, and maintained, so far as reasonably practicable, as to prevent the entrance or harborage of rodents, insects, and other vermin. A continuing and effective extermination program shall be instituted where their presence is detected. **1926.51(i)** *Change rooms*. Whenever employees are required by a particular standard to wear protective clothing because of the possibility of contamination with toxic materials, change rooms equipped with storage facilities for street clothes and separate storage facilities for the protective clothing shall be provided.	Partial	Policy requires a clean an orderly work environment however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.144 - Safety color code for marking physical hazards.	Color identification - **1910.144(a)(1)** Red. Red shall be the basic color for the identification of: **1910.144(a)(1)(i)** Fire protection equipment and apparatus. [Reserved] **1910.144(a)(1)(ii)** Danger. Safety cans or other portable containers of flammable liquids having a flash point at or below 80º F, table containers of flammable liquids (open cup tester), excluding shipping containers, shall be painted red with some additional clearly visible identification either in the form of a yellow band around the can or the name of the contents conspicuously stenciled or painted on the can in yellow. Red lights shall be provided at barricades and at temporary obstructions. Danger signs shall be painted red. **1910.144(a)(1)(iii)** Stop. Emergency stop bars on hazardous machines such as rubber mills, wire blocks, flat work ironers, etc., shall be red. Stop buttons or electrical switches which letters or other markings appear, used for emergency stopping of machinery shall be red. **1910.144(a)(3)** Yellow. Yellow shall be the basic color for designating caution and for marking physical hazards such as: Striking against, stumbling, falling, tripping, and "caught in between."	No	Not covered in any policy/procedure.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1910.145 - Specifications for accident prevention signs and tags.	**1910.145(a)(1)** These specifications apply to the design, application, and use of signs or symbols (as included in paragraphs (c) through (e) of this section) that indicate and, insofar as possible, define specific hazards that could harm workers or the public, or both, or to property damage. These specifications are intended to cover all safety signs except those designed for streets, highways, and railroads. These specifications do not apply to plant bulletin boards or to safety posters. **1910.145(a)(2)** All new signs and replacements of old signs shall be in accordance with these specifications. **1910.145(c)** Classification of signs according to use - **1910.145(c)(1)** Danger signs. **1910.145(c)(1)(i)** here shall be no variation in the type of design of signs posted to warn of specific dangers and radiation hazards. **1910.145(c)(1)(ii)** All employees shall be instructed that danger signs indicate immediate danger and that special precautions are necessary.**1910.145(c)(2)** Caution signs. **1910.145(c)(2)(i)** Caution signs shall be used only to warn against potential hazards or to caution against unsafe practices. **1910.145(c)(2)(ii)** All employees shall be instructed that caution signs indicate a possible hazard against which proper precaution should be taken. **1910.145(c)(3)** Safety instruction signs. Safety instruction signs shall be used where there is a need for general instructions and suggestions relative to safety measures. **1910.145(d)** Sign design - **1910.145(d)(1)** Design features. All signs shall be furnished with rounded or blunt corners and shall be free from sharp edges, burrs, splinters, or other sharp projections. The ends or heads of bolts or other fastening devices shall be located in such a way that they do not constitute a hazard. **1910.145(d)(2)** ***Danger signs*** **.** The colors red, black, and white shall be those of opaque glossy samples as specified in Table 1, "Fundamental Specification of Safety Colors for CIE Standard Source 'C,' " of ANSI Z53.1-1967 or in Table 1, "Specification of the Safety Colors for CIE Illuminate C and the CIE 1931, 2 ° Standard Observer," of ANSI Z535.1-2006(R2011), incorporated by reference in § 1910.6. **1910.145(d)(6)** ***Safety instruction signs*** **.** The standard color of the background shall be white; and the panel, green with white letters. Any letters used against the white background shall be black. The colors shall be those of opaque glossy samples as specified in Table 1 of ANSI Z53.1-1967 or in Table 1 of ANSI Z535.1-2006(R2011), incorporated by reference in § 1910.6. **1910.145(d)(10)** Slow-moving vehicle emblem. This emblem (see fig. J-7) consists of a fluorescent yellow-orange triangle with a dark red reflective border. The yellow-orange fluorescent triangle is a highly visible color for daylight exposure. The reflective border defines the shape of the fluorescent color in daylight and creates a hollow red triangle in the path of motor vehicle headlights at night. The emblem is intended as a unique identification for, and it shall be used only on, vehicles which by design move slowly (25 m.p.h. or less) on the public roads. The emblem is not a clearance marker for wide machinery nor is it intended to replace required lighting or marking of slow-moving vehicles. Neither the color film pattern and its dimensions nor the backing shall be altered to permit use of advertising or other markings. The material, location, mounting, etc., of the emblem shall be in accordance with the American Society of Agricultural Engineers Emblem for Identifying Slow-Moving Vehicles, ASAE R276, 1967, or ASAE S276.2 (ANSI B114.1-1971), which are incorporated by reference as specified in Sec. 1910.6. **1910.145(e)(4)** Biological hazard signs. The biological hazard warning shall be used to signify the actual or potential presence of a biohazard and to identify equipment, containers, rooms, materials, experimental animals, or combinations thereof, which contain, or are contaminated with, viable hazardous agents. For the purpose of this subparagraph the term "biological hazard," or "biohazard," shall include only those infectious agents presenting a risk or potential risk to the well-being of man. **1910.145(f)(2)** Definitions. "Biological hazard" or "BIOHAZARD" means those infectious agents presenting a risk of death, injury or illness to employees. "Major message" means that portion of a tag's inscription that is more specific than the signal word and that indicates the specific hazardous condition or the instruction to be communicated to the employee. Examples include: "High Voltage," "Close Clearance," "Do Not Start," or "Do Not Use" or a corresponding pictograph used with a written text or alone. "Pictograph" means a pictorial representation used to identify a hazardous condition or to convey a safety instruction. "Signal word" means that portion of a tag's inscription that contains the word or words that are intended to capture the employee's immediate attention. "Tag" means a device usually made of card, paper, pasteboard, plastic or other material used to identify a hazardous condition. **1910.145(f)(3)** Use. Tags shall be used as a means to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment or operations which are out of the ordinary, unexpected or not readily apparent. Tags shall be used until such time as the identified hazard is eliminated or the hazardous operation is completed. Tags need not be used where signs, guarding or other positive means of protection are being used. **1910.145(f)(4)** General tag criteria. All required tags shall meet the following criteria: **1910.145(f)(4)(i)** Tags shall contain a signal word and a major message. **1910.145(f)(4)(i)(A)** The signal word shall be either "Danger," "Caution," or "Biological Hazard," "BIOHAZARD," or the biological hazard symbol. **1910.145(f)(4)(i)(B)** The major message shall indicate the specific hazardous condition or the instruction to be communicated to the employee. **1910.145(f)(4)(ii)** The signal word shall be readable at a minimum distance of five feet (1.52 m) or such greater distance as warranted by the hazard. **1910.145(f)(4)(iii)** The tag's major message shall be presented in either pictographs, written text or both. **1910.145(f)(4)(iv)** The signal word and the major message shall be understandable to all employees who may be exposed to the identified hazard. **1910.145(f)(4)(v)** All employees shall be informed as to the meaning of the various tags used throughout the workplace and what special precautions are necessary. **1910.145(f)(4)(vi)** Tags shall be affixed as close as safely possible to their respective hazards by a positive means such as string, wire, or adhesive that prevents their loss or unintentional removal. **1910.145(f)(5)** Danger tags. Danger tags shall be used in major hazard situations where an immediate hazard presents a threat of death or serious injury to employees. Danger tags shall be used only in these situations. **1910.145(f)(6)** Caution tags. Caution tags shall be used in minor hazard situations where a non-immediate or potential hazard or unsafe practice presents a lesser threat of employee injury. Caution tags shall be used only in these situations. **1910.145(f)(7)** Warning tags. Warning tags may be used to represent a hazard level between "Caution" and "Danger," instead of the required "Caution" tag, provided that they have a signal word of "Warning," an appropriate major message, and otherwise meet the general tag criteria of paragraph (f)(4) of this section. **1910.145(f)(8)** Biological hazard tags. **1910.145(f)(8)(i)** Biological hazard tags shall be used to identify the actual or potential presence of a biological hazard and to identify equipment, containers, rooms, experimental animals, or combinations thereof, that contain or are contaminated with hazardous biological agents. **1910.145(f)(9)** Other tags. Other tags may be used in addition to those required by this paragraph (f), or in other situations where this paragraph (f) does not require tags, provided that they do not detract from the impact or visibility of the signal word and major message of any required tag.	No	Not covered in any policy/procedure.	X				
.0.146 - Permit-uired confined ces		**1910.146(a)** Scope and application. This section contains requirements for practices and procedures to protect employees in general industry from the hazards of entry into permit-required confined spaces. This section does not apply to agriculture, to construction, or to shipyard employment (Parts 1928, 1926, and 1915 of this chapter, respectively). "Permit-required confined space (permit space)" means a confined space that has one or more of the following characteristics: (1) Contains or has a potential to contain a hazardous atmosphere; (2) Contains a material that has the potential for engulfing an entrant; (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or (4) Contains any other recognized serious safety or health hazard. "Permit-required confined space program (permit space program)" means the employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.	Partial	Policy states guidelines for work in confined spaces, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X			X	
	1910.146 App A - Permit-required Confined Space Decision Flow Chart	**Appendix A to §1910.146 -- Permit-Required Confined Space Decision Flow Chart**	No	Policy states guidelines for work in confined spaces, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.146 App B - Procedures for Atmospheric Testing.	Atmospheric testing is required for two distinct purposes: evaluation of the hazards of the permit space and verification that acceptable entry conditions for entry into that space exist. (1) Evaluation testing. The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres that may exist or arise, so that appropriate permit entry procedures can be developed and acceptable entry conditions stipulated for that space. Evaluation and interpretation of these data, and development of the entry procedure, should be done by, or reviewed by, a technically qualified professional (e.g., OSHA consultation service, or certified industrial hygienist, registered safety engineer, certified safety professional, certified marine chemist, etc.) based on evaluation of all serious hazards. (2) Verification testing. The atmosphere of a permit space which may contain a hazardous atmosphere should be tested for residues of all contaminants identified by evaluation testing using permit specified equipment to determine that residual concentrations at the time of testing and entry are within the range of acceptable entry conditions. Results of testing (i.e., actual concentration, etc.) should be recorded on the permit in the space provided adjacent to the stipulated acceptable entry condition. (3) Duration of testing. Measurement of values for each atmospheric parameter should be made for at least the minimum response time of the test instrument specified by the manufacturer. (4) Testing stratified atmospheres. When monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope should be tested a distance of approximately 4 feet (1.22 m) in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress should be slowed to accommodate the sampling speed and detector response. (5) Order of testing. A test for oxygen is performed first because most combustible gas meters are oxygen dependent and will not provide reliable readings in an oxygen deficient atmosphere. Combustible gases are tested for next because the threat of fire or explosion is both more immediate and more life threatening, in most cases, than exposure to toxic gases and vapors. If tests for toxic gases and vapors are necessary, they are performed last.	Partial	Policy states guidelines for work in confined spaces, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.146 App C - Examples of Permit-required Confined Space Programs	Permits. Confined Space Entry Permit. All spaces shall be considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise. Any employee required or permitted to pre-check or enter a permit-required confined space shall have successfully completed, as a minimum, the training as required by the following sections of these procedures. A written copy of operating and rescue procedures as required by these procedures shall be at the work site for the duration of the job. The Confined Space Entry Permit must be completed before approval can be given to enter a permit-required confined space. This permit verifies completion of items listed below. This permit shall be kept at the job site for the duration of the job. If circumstances cause an interruption in the work or a change in the alarm conditions for which entry was approved, a new Confined Space Entry Permit must be completed.	No	Policy states guidelines for work in confined spaces, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.146 App D - Confined Space Pre-Entry Check List	Appendix D to §1910.146 -- Sample Permits	No	Policy states guidelines for work in confined spaces, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.146 App F - Non-Mandatory Appendix F -- Rescue Team or Rescue Service Evaluation Criteria	(1) This appendix provides guidance to employers in choosing an appropriate rescue service. It contains criteria that may be used to evaluate the capabilities both of prospective and current rescue teams. Before a rescue team can be trained or chosen, however, a satisfactory permit program, including an analysis of all permit- required confined spaces to identify all potential hazards in those spaces, must be completed. OSHA believes that compliance with all the provisions of §1910.146 will enable employers to conduct permit space operations without recourse to rescue services in nearly all cases. However, experience indicates that circumstances will arise where entrants will need to be rescued from permit spaces. It is therefore important for employers to select rescue services or teams, either on-site or off-site, that are equipped and capable of minimizing harm to both entrants and rescuers if the need arises. (2) For all rescue teams or services, the employer's evaluation should consist of two components: an initial evaluation, in which employers decide whether a potential rescue service or team is adequately trained and equipped to perform permit space rescues of the kind needed at the facility and whether such rescuers can respond in a timely manner, and a performance evaluation, in which employers measure the performance of the team or service during an actual or practice rescue. For example, based on the initial evaluation, an employer may determine that maintaining an on-site rescue team will be more expensive than obtaining the services of an off-site team, without being significantly more effective, and decide to hire a rescue service. During a performance evaluation, the employer could decide, after observing the rescue service perform a practice rescue, that the service's training or preparedness was not adequate to effect a timely or effective rescue at his or her facility and decide to select another rescue service, or to form an internal rescue team	No	Policy states guidelines for work in confined spaces, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
.0.147 - The control iazardous energy :kout/tagout).		**1910.147(a)(1)(i)** This standard covers the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment, or release of stored energy, could harm employees. This standard establishes minimum performance requirements for the control of such hazardous energy. **1910.147(a)(2)(i)** This standard applies to the control of energy during servicing and/or maintenance of machines and equipment. **1910.147(a)(2)(ii)** Normal production operations are not covered by this standard (See Subpart O of this Part). Servicing and/or maintenance which takes place during normal production operations is covered by this standard only if: **1910.147(a)(2)(ii)(A)** An employee is required to remove or bypass a guard or other safety device; or **1910.147(a)(2)(ii)(B)** An employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine operating cycle. Note: Exception to paragraph (a)(2)(ii): Minor tool changes and adjustments, and other minor servicing activities, which take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection (See Subpart O of this Part). **1910.147(a)(3)(i)** This section requires employers to establish a program and utilize procedures for affixing appropriate lockout devices or tagout devices to energy isolating devices, and to otherwise disable machines or equipment to prevent unexpected energization, start up or release of stored energy in order to prevent injury to employees. **1910.147(a)(3)(ii)** When other standards in this part require the use of lockout or tagout, they shall be used and supplemented by the procedural and training requirements of this section. **1910.147(c)(2)** Lockout/tagout. **1910.147(c)(2)(i)** If an energy isolating device is not capable of being locked out, the employer's energy control program under paragraph (c)(1) of this section shall utilize a tagout system. **1910.147(c)(2)(ii)** If an energy isolating device is capable of being locked out, the employer's energy control program under paragraph (c)(1) of this section shall utilize lockout, unless the employer can demonstrate that the utilization of a tagout system will provide full employee protection as set forth in paragraph (c)(3) of this section. **1910.147(c)(6)** Periodic inspection. **1910.147(c)(6)(i)** The employer shall conduct a periodic inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of this standard are being followed. **1910.147(c)(6)(i)(A)** The periodic inspection shall be performed by an authorized employee other than the ones(s) utilizing the energy control procedure being inspected. **1910.147(c)(6)(i)(B)** The periodic inspection shall be conducted to correct any deviations or inadequacies identified. **1910.147(c)(6)(i)(C)** Where lockout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected. **1910.147(c)(6)(i)(D)** Where tagout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected, and the elements set forth in paragraph (c)(7)(ii) of this section. **1910.147(c)(6)(ii)** The employer shall certify that the periodic inspections have been performed. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.	Partial	Policy states guidelines for work around hazardous energy and Lock out tag out procedures, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
		1910.147(a)(3)(ii) When other standards in this part require the use of lockout or tagout, they shall be used and supplemented by the procedural and training requirements of this section. **1910.147(c)(2)** *Lockout/tagout* . **1910.147(c)(2)(i)** If an energy isolating device is not capable of being locked out, the employer's energy control program under paragraph (c)(1) of this section shall utilize a tagout system. **1910.147(c)(2)(ii)** If an energy isolating device is capable of being locked out, the employer's energy control program under paragraph (c)(1) of this section shall utilize lockout, unless the employer can demonstrate that the utilization of a tagout system will provide full employee protection as set forth in paragraph (c)(3) of this section. **1910.147(c)(6)** *Periodic inspection* . **1910.147(c)(6)(i)** The employer shall conduct a periodic inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of this standard are being followed. **1910.147(c)(6)(i)(A)** The periodic inspection shall be performed by an authorized employee other than the ones(s) utilizing the energy control procedure being inspected. **1910.147(c)(6)(i)(B)** The periodic inspection shall be conducted to correct any deviations or inadequacies identified. **1910.147(c)(6)(i)(C)** Where lockout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected. **1910.147(c)(6)(i)(D)** Where tagout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected, and the elements set forth in paragraph (c)(7)(ii) of this section. **1910.147(c)(6)(ii)** The employer shall certify that the periodic inspections have been performed. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.	Partial	Policy states guidelines for work around hazardous energy and Lock out tag out procedures, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.147 App A - Typical minimal lockout procedures	*General* The following simple lockout procedure is provided to assist employers in developing their procedures so they meet the requirements of this standard. When the energy isolating devices are not lockable, tagout may be used, provided the employer complies with the provisions of the standard which require additional training and more rigorous periodic inspections. When tagout is used and the energy isolating devices are lockable, the employer must provide full employee protection (see paragraph (c)(3)) and additional training and more rigorous periodic inspections are required. For more complex systems, more comprehensive procedures may need to be developed, documented, and utilized. *Purpose* This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury. *Compliance With This Program* All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize, or use that machine or equipment. *Sequence of Lockout* (1) Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance. (2) The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy. (3) If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.). (4) De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s). (5) Lock out the energy isolating device(s) with assigned individual lock(s). (6) Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc. (7) Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate. (8) The machine or equipment is now locked out. *Restoring Equipment to Service* . When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken. (1) Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact. (2) Check the work area to ensure that all employees have been safely positioned or removed from the area. (3) Verify that the controls are in neutral. (4) Remove the lockout devices and reenergize the machine or equipment. Note: The removal of some forms of blocking may require reenergization of the machine before safe removal.	Partial	Policy states guidelines for work around hazardous energy and Lock out tag out procedures, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
.0 Subpart K - dical and First Aid									
	1910.151 - Medical services and first aid.	**1910.151(a)** The employer shall ensure the ready availability of medical personnel for advice and consultation on matters of plant health. **1910.151(b)** In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid. Adequate first aid supplies shall be readily available. **1910.151(c)** Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.	Partial	Policy states some guidelines for first aid, however the policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
.0 Subpart L - Fire tection									
	1910.155 - Scope, application and definitions applicable to this subpart.	**1910.155(a)** Scope. This subpart contains requirements for fire brigades, and all portable and fixed fire suppression equipment, fire detection systems, and fire or employee alarm systems installed to meet the fire protection requirements of 29 CFR Part 1910.	Partial	Policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.157 - Portable fire extinguishers.	**1910.157(a)** Scope and application. The requirements of this section apply to the placement, use, maintenance, and testing of portable fire extinguishers provided for the use of employees. Paragraph (d) of this section does not apply to extinguishers provided for employee use on the outside of workplace buildings or structures. Where extinguishers are provided but are not intended for employee use and the employer has an emergency action plan and a fire prevention plan that meet the requirements of 29 CFR 1910.38 and 29 CFR 1910.39 respectively, then only the requirements of paragraphs (e) and (f) of this section apply. **1910.157(d)(1)** Portable fire extinguishers shall be provided for employee use and selected and distributed based on the classes of anticipated workplace fires and on the size and degree of hazard which would affect their use. 1910.157(e) Inspection, maintenance and testing. 1910.157(e)(1) The employer shall be responsible for the inspection, maintenance and testing of all portable fire extinguishers in the workplace.	Partial	Policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.164 - Fire detection systems.	Scope and application. This section applies to all automatic fire detection systems installed to meet the requirements of a particular OSHA standard. **1910.164(b)** Installation and restoration. **1910.164(b)(1)** The employer shall assure that all devices and equipment constructed and installed to comply with this standard are approved for the purpose for which they are intended. **1910.164(b)(2)** The employer shall restore all fire detection systems and components to normal operating condition as promptly as possible after each test or alarm. Spare detection devices and components which are normally destroyed in the process of detecting fires shall be available on the premises or from a local supplier in sufficient quantities and locations for prompt restoration of the system. **1910.164(c)** Maintenance and testing. **1910.164(c)(1)** The employer shall maintain all systems in an operable condition except during repairs or maintenance. **1910.164(c)(2)** The employer shall assure that fire detectors and fire detection systems are tested and adjusted as often as needed to maintain proper reliability and operating condition except that factory calibrated detectors need not be adjusted after installation. **1910.164(c)(3)** The employer shall assure that pneumatic and hydraulic operated detection systems installed after January 1, 1981, are equipped with supervised systems. **1910.164(c)(4)** The employer shall assure that the servicing, maintenance and testing of fire detection systems, including cleaning and necessary sensitivity adjustments are performed by a trained person knowledgeable in the operations and functions of the system. **1910.164(c)(5)** The employer shall also assure that fire detectors that need to be cleaned of dirt, dust, or other particulates in order to be fully operational are cleaned at regular periodic intervals. **1910.164(d)** Protection of fire detectors. **1910.164(d)(1)** The employer shall assure that fire detection equipment installed outdoors or in the presence of corrosive atmospheres be protected from corrosion. The employer shall provide a canopy, hood, or other suitable protection for detection equipment requiring protection from the weather. **1910.164(d)(2)** The employer shall locate or otherwise protect detection equipment so that it is protected from mechanical or physical impact which might render it inoperable. **1910.164(d)(3)** The employer shall assure that detectors are supported independently of their attachment to wires or tubing. **1910.164(e)** Response time. **1910.164(e)(1)** The employer shall assure that fire detection systems installed for the purpose of actuating fire extinguishment or suppression systems shall be designed to operate in time to control or extinguish a fire. **1910.164(e)(2)** The employer shall assure that fire detection systems installed for the purpose of employee alarm and evacuation be designed and installed to provide a warning for emergency action and safe escape of employees. **1910.164(e)(3)** The employer shall not delay alarms or devices initiated by fire detector actuation for more than 30 seconds unless such delay is necessary for the immediate safety of employees. When such delay is necessary, it shall be addressed in an emergency action plan meeting the requirements of 1910.38. **1910.164(f)** Number, location and spacing of detecting devices. The employer shall assure that the number, spacing and location of fire detectors is based upon design data obtained from field experience, or tests, engineering surveys, the manufacturer's recommendations, or a recognized testing laboratory listing.	Partial	Policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910.165 - Employee alarm systems.	**1910.165(b) General requirements. 1910.165(b)(1)** The employee alarm system shall provide warning for necessary emergency action as called for in the emergency action plan, or for reaction time for safe escape of employees from the workplace or the immediate work area, or both. **1910.165(b)(2)** The employee alarm shall be capable of being perceived above ambient noise or light levels by all employees in the affected portions of the workplace. Tactile devices may be used to alert those employees who would not otherwise be able to recognize the audible or visual alarm. **1910.165(b)(3)** The employee alarm shall be distinctive and recognizable as a signal to evacuate the work area or to perform actions designated under the emergency action plan. **1910.165(b)(4)** The employer shall explain to each employee the preferred means of reporting emergencies, such as manual pull box alarms, public address systems, radio or telephones. The employer shall post emergency telephone numbers near telephones, or employee notice boards, and other conspicuous locations when telephones serve as a means of reporting emergencies. Where a communication system also serves as the employee alarm system, all emergency messages shall have priority over all non-emergency messages. **1910.165(b)(5)** The employer shall establish procedures for sounding emergency alarms in the workplace. For those employers with 10 or fewer employees in a particular workplace, direct voice communication is an acceptable procedure for sounding the alarm provided all employees can hear the alarm. Such workplaces need not have a back-up system. **1910.165(c) Installation and restoration. 1910.165(c)(1)** The employer shall assure that all devices, components, combinations of devices or systems constructed and installed to comply with this standard are approved. Steam whistles, air horns, strobe lights or similar lighting devices, or tactile devices meeting the requirements of this section are considered to meet this requirement for approval. **1910.165(c)(2)** The employer shall assure that all employee alarm systems are restored to normal operating condition as promptly as possible after each test or alarm. Spare alarm devices and components subject to wear or destruction shall be available in sufficient quantities and locations for prompt restoration of the system. **1910.165(d) Maintenance and testing 1910.165(d)(1)** The employer shall assure that all employee alarm systems are maintained in operating condition except when undergoing repairs or maintenance. **1910.165(d)(2)** The employer shall assure that a test of the reliability and adequacy of non-supervised employee alarm systems is made every two months. A different actuation device shall be used in each test of a multi-actuation device system so that no individual device is used for two consecutive tests. **1910.165(d)(3)** The employer shall maintain or replace power supplies as often as is necessary to assure a fully operational condition. Back-up means of alarm, such as employee runners or telephones, shall be provided when systems are out of service. **1910.165(d)(4)** The employer shall assure that employee alarm circuitry installed after January 1, 1981, which is capable of being supervised is supervised and that it will provide positive notification to assigned personnel whenever a deficiency exists in the system. The employer shall assure that all supervised employee alarm systems are tested at least annually for reliability and adequacy. **1910.165(d)(5)** The employer shall assure that the servicing, maintenance and testing of employee alarms are done by persons trained in the designed operation and functions necessary for reliable and safe operation of the system. **1910.165(e)** Manual operation. The employer shall assure that manually operated actuation devices for use in conjunction with employee alarms are unobstructed, conspicuous and readily accessible.	Partial	Policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910 Subpart L App A - Fire Protection	The following appendix to Subpart L serve as nonmandatory guidelines to assist employers in complying with the appropriate requirements of Subpart L.	Partial	Policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910 Subpart L App B - National Consensus Standards	The following appendix to Subpart L serve as nonmandatory guidelines to assist employers in complying with the appropriate requirements of Subpart L.	Partial	Policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1910 Subpart L App C - Fire Protection references for further information	The following appendix to Subpart L serve as nonmandatory guidelines to assist employers in complying with the appropriate requirements of Subpart L.	Partial	Policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1910.176 - Handling materials - general.	**1910.176(a)** Use of mechanical equipment. Where mechanical handling equipment is used, sufficient safe clearances shall be allowed for aisles, at loading docks, through doorways and wherever turns or passage must be made. Aisles and passageways shall be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard. Permanent aisles and passageways shall be appropriately marked. **1910.176(b)** Secure storage. Storage of material shall not create a hazard. Bags, containers, bundles, etc., stored in tiers shall be stacked, blocked, interlocked and limited in height so that they are stable and secure against sliding or collapse. **1910.176(c)** Housekeeping. Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage. Vegetation control will be exercised when necessary. **1910.176(e)** Clearance limits. Clearance signs to warn of clearance limits shall be provided. **1910.176(f)** Rolling railroad cars. Derail and/or bumper blocks shall be provided on spur railroad tracks where a rolling car could contact other cars being worked, enter a building, work or traffic area. **1910.176(g)** Guarding. Covers and/or guard- rails shall be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, etc.	Partial	Policy states guidelines for material handling work, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.178 - Powered industrial trucks.	**1910.178(a)(1)** This section contains safety requirements relating to fire protection, design, maintenance, and use of fork trucks, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines. This section does not apply to compressed air or nonflammable compressed gas-operated industrial trucks, nor to farm vehicles, nor to vehicles intended primarily for earth moving or over-the-road hauling. **1910.178(a)(2)** All new powered industrial trucks acquired and used by an employer shall meet the design and construction requirements for powered industrial trucks established in the "American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1-1969", which is incorporated by reference as specified in §1910.6, except for vehicles intended primarily for earth moving or over-the-road hauling. **1910.178(a)(3)** Approved trucks shall bear a label or some other identifying mark indicating approval by the testing laboratory. See paragraph (a)(7) of this section and paragraph 405 of "American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1-1969", which is incorporated by reference in paragraph (a)(2) of this section and which provides that if the powered industrial truck is accepted by a nationally recognized testing laboratory it should be so marked. **1910.178(a)(4)** Modifications and additions which affect capacity and safe operation shall not be performed by the customer or user without manufacturers prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly. **1910.178(a)(5)** If the truck is equipped with front-end attachments other than factory installed attachments, the user shall request that the truck be marked to identify the attachments and show the approximate weight of the truck and attachment combination at maximum elevation with load laterally centered. **1910.178(a)(6)** The user shall see that all nameplates and markings are in place and are maintained in a legible condition. **1910.178(a)(7)** As used in this section, the term, approved truck or approved industrial truck means a truck that is listed or approved for fire safety purposes for the intended use by a nationally recognized testing laboratory, using nationally recognized testing standards. Refer to §1910.155(c)(3)(iv)(A) for definition of listed, and to §1910.7 for definition of nationally recognized testing laboratory. 1910.178(c)(2)(i) Power-operated industrial trucks shall not be used in atmospheres containing hazardous concentration of acetylene, butadiene, ethylene oxide, hydrogen (or gases or vapors equivalent in hazard to hydrogen, such as manufactured gas), propylene oxide, acetaldehyde, cyclopropane, diethyl ether, ethylene, isoprene, or unsymmetrical dimethyl hydrazine (UDMH). 1910.178(c)(2)(ii)(a) Power-operated industrial trucks shall not be used in atmospheres containing hazardous concentrations of metal dust, including aluminum, magnesium, and their commercial alloys, other metals of similarly hazardous characteristics, or in atmospheres containing carbon black, coal or coke dust except approved power-operated industrial trucks designated as EX may be used in such atmospheres. 1910.178(c)(2)(ii)(b) In atmospheres where dust of magnesium, aluminum or aluminum bronze may be present, fuses, switches, motor controllers, and circuit breakers of trucks shall have enclosures specifically approved for such locations. 1910.178(c)(2)(iii) Only approved power-operated industrial trucks designated as EX may be used in atmospheres containing acetone, acrylonitrile, alcohol, ammonia, benzine, benzol, butane, ethylene dichloride, gasoline, hexane, lacquer solvent vapors, naphtha, natural gas, propane, propylene, styrene, vinyl acetate, vinyl chloride, or xylenes in quantities sufficient to produce explosive or ignitable mixtures and where such concentrations of these gases or vapors exist continuously, intermittently or periodically under normal operating conditions or may exist frequently because of repair, maintenance operations, leakage, breakdown or faulty operation of equipment.	Partial	Policy states guidelines for material handling work, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
	1910.178 App A - Powered industrial trucks.	Appendix A – Stability of Powered Industrial Trucks (Non-mandatory Appendix to Paragraph (i) of This Section)	No	Policy states guidelines for material handling work, however the policy is too brief/high-level and is silent on some individual provisions of the regulation.	X				
6 Subpart CC - nes & Derricks in nstruction									
	1926.1400 - Scope.	**1926.1400(a)** This standard applies to power-operated equipment, when used in construction, that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: Articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load; industrial cranes (such as carry-deck cranes); dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, *i.e.* , "hammerhead boom"), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead and gantry cranes; straddle cranes; sideboom cranes; derricks; and variations of such equipment. However, items listed in paragraph (c) of this section are excluded from the scope of this standard.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation.	X				
	1926.1402 - Ground conditions.	**1926.1402(a)(1)** "Ground conditions" means the ability of the ground to support the equipment (including slope, compaction, and firmness). **1926.1402(a)(2)** "Supporting materials" means blocking, mats, cribbing, marsh buggies (in marshes/wetlands), or similar supporting materials or devices. **1926.1402(b)** The equipment must not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met. The requirement for the ground to be drained does not apply to marshes/wetlands.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including requirements for ground control.	X				
	1926.1403 - Assembly/Disassembly--selection of manufacturer or employer procedures.	When assembling or disassembling equipment (or attachments), the employer must comply with all applicable manufacturer prohibitions and must comply with either: **1926.1403(a)** Manufacturer procedures applicable to assembly and disassembly, or **1926.1403(b)** Employer procedures for assembly and disassembly. Employer procedures may be used only where the employer can demonstrate that the procedures used meet the requirements in § 1926.1406. **Note:** The employer must follow manufacturer procedures when an employer uses synthetic slings during assembly or disassembly rigging. (*See* § 1926.1404(r).)	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including requirements for assembly/disassembly.	X				
	1926.1404 - Assembly/Disassembly--general requirements (applies to all assembly and disassembly operations).	**1926.1404(a)(1)** Assembly/disassembly must be directed by a person who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons ("A/D director"). **1926.1404(a)(2)** Where the assembly/disassembly is being performed by only one person, that person must meet the criteria for both a competent person and a qualified person. For purposes of this standard, that person is considered the A/D director. **1926.1404(b)** *Knowledge of procedures* . The A/D director must understand the applicable assembly/disassembly procedures. **1926.1404(c)** *Review of procedures* . The A/D director must review the applicable assembly/disassembly procedures immediately prior to the commencement of assembly/disassembly unless the A/D director understands the procedures and has applied them to the same type and configuration of equipment (including accessories, if any). **1926.1404(d)** *Crew instructions* . **1926.1404(d)(1)** Before commencing assembly/disassembly operations, the A/D director must ensure that the crew members understand all of the following: 1926.1404(d)(1)(i) Their tasks. 1926.1404(d)(1)(ii) The hazards associated with their tasks. 1926.1404(d)(1)(iii) The hazardous positions/locations that they need to avoid. 1926.1404(d)(2) During assembly/disassembly operations, before a crew member takes on a different task, or when adding new personnel during the operations, the requirements in paragraphs (d)(1)(i) through (d)(1)(iii) of this section must be met. 1926.1404(e) Protecting assembly/disassembly crew members out of operator view. 1926.1404(e)(1) Before a crew member goes to a location that is out of view of the operator and is either in, on, or under the equipment, or near the equipment (or load) where the crew member could be injured by movement of the equipment (or load), the crew member must inform the operator that he/she is going to that location. 1926.1404(e)(2) Where the operator knows that a crew member went to a location covered by paragraph (e)(1) of this section, the operator must not move any part of the equipment (or load) until the operator is informed in accordance with a pre-arranged system of communication that the crew member is in a safe position. 1926.1404(f) Working under the boom, jib or other components. 1926.1404(f)(1) When pins (or similar devices) are being removed, employees must not be under the boom, jib, or other components, except where the requirements of paragraph (f)(2) of this section are met. 1926.1404(f)(2) Exception. Where the employer demonstrates that site constraints require one or more employees to be under the boom, jib, or other components when pins (or similar devices) are being removed, the A/D director must implement procedures that minimize the risk of unintended dangerous movement and minimize the duration and extent of exposure under the boom. (See Non-mandatory Appendix B of this subpart for an example.) 1926.1404(g) Capacity limits. During all phases of assembly/disassembly, rated capacity limits for loads imposed on the equipment, equipment components (including rigging), lifting lugs and equipment accessories, must not be exceeded for the equipment being assembled/disassembled. 1926.1404(h) Addressing specific hazards. The A/D director supervising the assembly/disassembly operation must address the hazards associated with the operation, which include: 1926.1404(h)(1) Site and ground bearing conditions. Site and ground conditions must be adequate for safe assembly/disassembly operations and to support the equipment during assembly/disassembly (see § 1926.1402 for ground condition requirements). 1926.1404(h)(2) Blocking material. The size, amount, condition and method of stacking the blocking must be sufficient to sustain the loads and maintain stability. 1926.1404(h)(3) Proper location of blocking. When used to support lattice booms or components, blocking must be appropriately placed to: 1926.1404(h)(3)(i) Protect the structural integrity of the equipment, and 1926.1404(h)(3)(ii) Prevent dangerous movement and collapse. 1926.1404(h)(4) Verifying assist crane loads. When using an assist crane, the loads that will be imposed on the assist crane at each phase of assembly/disassembly must be verified in accordance with § 1926.1417(o)(3) before assembly/disassembly begins. 1926.1404(h)(5) Boom and jib pick points. The point(s) of attachment of rigging to a boom (or boom sections or jib or jib sections) must be suitable for preventing structural damage and facilitating safe handling of these components. 1926.1404(h)(6) Center of gravity. 1926.1404(h)(6)(i) The center of gravity of the load must be identified if that is necessary for the method used for maintaining stability. 1926.1404(h)(6)(ii) Where there is insufficient information to accurately identify the center of gravity, measures designed to prevent unintended dangerous movement resulting from an inaccurate identification of the center of gravity must be used. (See Non-mandatory Appendix B of this subpart for an example.) 1926.1404(h)(7) Stability upon pin removal. The boom sections, boom suspension systems (such as gantry A-frames and jib struts), and components must be rigged or supported to maintain stability upon the removal of the pins. 1926.1404(h)(8) Snagging. Suspension ropes and pendants must not be allowed to catch on the boom or jib connection pins or cotter pins (including keepers and locking pins). 1926.1404(h)(9) Struck by counterweights. The potential for unintended movement from inadequately supported counterweights and from hoisting counterweights. 1926.1404(h)(10) Boom hoist brake failure. Each time reliance is to be placed on the boom hoist brake to prevent boom movement during assembly/disassembly, the brake must be tested prior to such reliance to determine if it is sufficient to prevent boom movement. If it is not sufficient, a boom hoist pawl, other locking device/back-up braking device, or another method of preventing dangerous movement of the boom (such as blocking or using an assist crane) from a boom hoist brake failure must be used. 1926.1404(h)(11) Loss of backward stability. Backward stability before swinging the upperworks, travel, and when attaching or removing equipment components. 1926.1404(h)(12) Wind speed and weather. The effect of wind speed and weather on the equipment. 1926.1404(j) Cantilevered boom sections. Manufacturer limitations on the maximum amount of boom supported only by cantilevering must not be exceeded. Where these are unavailable, a registered professional engineer familiar with the type of equipment involved must determine in writing this limitation, which must not be exceeded. 1926.1404(k) Weight of components. The weight of each of the components must be readily available. 1926.1404(m) Components and configuration. 1926.1404(m)(1) The selection of components and configuration of the equipment that affect the capacity or safe operation of the equipment must be in accordance with: 1926.1404(m)(1)(i) Manufacturer instructions, prohibitions, limitations, and specifications. Where these are unavailable, a registered professional engineer	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including requirements for assembly/disassembly.	X				

Appendix C
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Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
		The selection of components, and configuration of the equipment, that affect the capacity or safe operation of the equipment must be in accordance with: Section 1926.1436(m)(3)(i) manufacturer's instructions, prohibitions, limitations, and specifications. Where these are unavailable, a registered professional engineer familiar with the type of equipment involved must approve, in writing, the selection and configuration of components; or **1926.1404(m)(1)(ii)** Approved modifications that meet the requirements of § 1926.1434 (Equipment modifications). **1926.1404(m)(2)** Post-assembly inspection. Upon completion of assembly, the equipment must be inspected to ensure compliance with paragraph (m)(1) of this section (see § 1926.1412(c) for post-assembly inspection requirements). **1926.1404(o)** Shipping pins. Reusable shipping pins, straps, links, and similar equipment must be removed. Once they are removed they must either be stowed or otherwise stored so that they do not present a falling object hazard. **1926.1404(p)** Pile driving. Equipment used for pile driving must not have a jib attached during pile driving operations. **1926.1404(q)** Outriggers and Stabilizers. When the load to be handled and the operating radius require the use of outriggers or stabilizers, or at any time when outriggers or stabilizers are used, all of the following requirements must be met (except as otherwise indicated): **1926.1404(q)(1)** The outriggers or stabilizers must be either fully extended or, if manufacturer procedures permit, deployed as specified in the load chart. **1926.1404(q)(2)** The outriggers must be set to remove the equipment weight from the wheels, except for locomotive cranes (see paragraph (q)(6) of this section for use of outriggers on locomotive cranes). This provision does not apply to stabilizers. **1926.1404(q)(3)** When outrigger floats are used, they must be attached to the outriggers. When stabilizer floats are used, they must be attached to the stabilizers. **1926.1404(q)(4)** Each outrigger or stabilizer must be visible to the operator or to a signal person during extension and setting. **1926.1404(q)(5)** Outrigger and stabilizer blocking must: **1926.1404(q)(5)(i)** Meet the requirements in paragraphs (h)(2) and (h)(3) of this section. **1926.1404(q)(5)(ii)** Be placed only under the outrigger or stabilizer float/pad of the jack or, where the outrigger or stabilizer is designed without a jack, under the outer bearing surface of the extended outrigger or stabilizer beam. **1926.1404(q)(6)** For locomotive cranes, when using outriggers or stabilizers to handle loads, the manufacturer's procedures must be followed. When lifting loads without using outriggers or stabilizers, the manufacturer's procedures must be met regarding truck wedges or screws. **1926.1404(r)** Rigging. In addition to following the requirements in 29 CFR 1926.251 and other requirements in this and other standards applicable to rigging, when rigging is used for assembly/disassembly, the employer must ensure that: **1926.1404(r)(1)** The rigging work is done by a qualified rigger. **1926.1404(r)(2)** Synthetic slings are protected from: Abrasive, sharp or acute edges, and configurations that could cause a reduction of the sling's rated capacity, such as distortion or localized compression. Note: Requirements for the protection of wire rope slings are contained in 29 CFR 1926.251(c)(9). **1926.1404(r)(3)** When synthetic slings are used, the synthetic sling manufacturer's instructions, limitations, specifications and recommendations must be followed.								
	1926.1405 - Disassembly--additional requirements for dismantling of booms and jibs (applies to both the use of manufacturer procedures and employer procedures).	Dismantling (including dismantling for changing the length of) booms and jibs. **1926.1405(a)** None of the pins in the pendants are to be removed (partly or completely) when the pendants are in tension. **1926.1405(b)** None of the pins (top or bottom) on boom sections located between the pendant attachment points and the crane/derrick body are to be removed (partly or completely) when the pendants are in tension. **1926.1405(c)** None of the pins (top or bottom) on boom sections located between the uppermost boom section and the crane/derrick body are to be removed (partly or completely) when the boom is being supported by the uppermost boom section resting on the ground (or other support). **1926.1405(d)** None of the top pins on boom sections located on the cantilevered portion of the boom being removed (the portion being removed ahead of the pendant attachment points) are to be removed (partly or completely) until the cantilevered section to be removed is fully supported.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including requirements for assembly/disassembly.	X				
	1926.1406 - Assembly/Disassembly--employer procedures--general requirements.	**1926.1406(a)** When using employer procedures instead of manufacturer procedures for assembly/disassembly, the employer must ensure that the procedures: **1926.1406(a)(1)** Prevent unintended dangerous movement, and prevent collapse, of any part of the equipment. **1926.1406(a)(2)** Provide adequate support and stability of all parts of the equipment. **1926.1406(a)(3)** Position employees involved in the assembly/disassembly operation so that their exposure to unintended movement or collapse of part or all of the equipment is minimized. **1926.1406(b)** *Qualified person* . Employer procedures must be developed by a qualified person.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including requirements for assembly/disassembly.	X				
	1926.1407 - Power line safety (up to 350 kV)--assembly and disassembly.	Before assembling or disassembling equipment, the employer must determine if any part of the equipment, load line, or load (including rigging and lifting accessories) could get, in the direction or area of assembly/disassembly, closer than 20 feet to a power line during the assembly/disassembly process. If so, the employer must meet the requirements in Option (1), Option (2), or Option (3) of this section, as follows: **1926.1407(a)(1)** Option (1)--Deenergize and ground. Confirm from the utility owner/operator that the power line has been deenergized and visibly grounded at the worksite. **1926.1407(a)(2)** Option (2)--20 foot clearance. Ensure that no part of the equipment, load line, or load (including rigging and lifting accessories), gets closer than 20 feet to the power line by implementing the measures specified in paragraph (b) of this section. **1926.1407(a)(3)** Option (3)--Table A clearance. **1926.1407(a)(3)(i)** Determine the line's voltage and the minimum clearance distance permitted under Table A (see § 1926.1408). **1926.1407(a)(3)(ii)** Determine if any part of the equipment, load line, or load (including rigging and lifting accessories), could get closer than the minimum clearance distance to the power line permitted under Table A (see § 1926.1408). If so, then the employer must follow the requirements in paragraph (b) of this section to ensure that no part of the equipment, load line, or load (including rigging and lifting accessories), gets closer to the line than the minimum clearance distance. **1926.1407(b)** Preventing encroachment/electrocution. Where encroachment precautions are required under Option (2), or Option (3) of this section, all of the following requirements must be met: **1926.1407(b)(1)** Conduct a planning meeting with the Assembly/Disassembly director (A/D director), operator, assembly/disassembly crew and the other workers who will be in the assembly/disassembly area to review the location of the power line(s) and the steps that will be implemented to prevent encroachment/electrocution. **1926.1407(b)(2)** If tag lines are used, they must be nonconductive. **1926.1407(b)(3)** At least one of the following additional measures must be in place. The measure selected from this list must be effective in preventing encroachment. The additional measures are: **1926.1407(b)(3)(i)** Use a dedicated spotter who is in continuous contact with the equipment operator. The dedicated spotter must: **1926.1407(b)(3)(i)(A)** Be equipped with a visual aid to assist in identifying the minimum clearance distance. Examples of a visual aid include, but are not limited to: A clearly visible line painted on the ground; a clearly visible line of stanchions; a set of clearly visible line-of-sight landmarks (such as a fence post behind the dedicated spotter and a building corner ahead of the dedicated spotter). **1926.1407(b)(3)(i)(B)** Be positioned to effectively gauge the clearance distance. **1926.1407(b)(3)(i)(C)** Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator. **1926.1407(b)(3)(i)(D)** Give timely information to the operator so that the required clearance distance can be maintained. **1926.1407(b)(3)(ii)** A proximity alarm set to give the operator sufficient warning to prevent encroachment. **1926.1407(b)(3)(iii)** A device that automatically warns the operator when to stop movement, such as a range control warning device. Such a device must be set to give the operator sufficient warning to prevent encroachment. **1926.1407(b)(3)(iv)** A device that automatically limits range of movement, set to prevent encroachment. **1926.1407(b)(3)(v)** An elevated warning line, barricade, or line of signs, in view of the operator, equipped with flags or similar high-visibility markings. **1926.1407(c)** Assembly/disassembly below power lines prohibited. No part of a crane/derrick, load line, or load (including rigging and lifting accessories), whether partially or fully assembled, is allowed below a power line unless the employer has confirmed that the utility owner/operator has deenergized and (at the worksite) visibly grounded the power line. **1926.1407(d)** Assembly/disassembly inside Table A clearance prohibited. No part of a crane/derrick, load line, or load (including rigging and lifting accessories), whether partially or fully assembled, is allowed closer than the minimum approach distance under Table A (see § 1926.1408) to a power line unless the employer has confirmed that the utility owner/operator has deenergized and (at the worksite) visibly grounded the power line. **1926.1407(e)** Voltage information. Where Option (3) of this section is used, the utility owner/operator of the power lines must provide the requested voltage information within two working days of the employer's request. **1926.1407(f)** Power lines presumed energized. The employer must assume that all power lines are energized unless the utility owner/operator confirms that the power line has been and continues to be deenergized and visibly grounded at the worksite. **1926.1407(g)** Posting of electrocution warnings. There must be at least one electrocution hazard warning conspicuously posted in the cab so that it is in view of the operator and (except for overhead gantry and tower cranes) at least two on the outside of the equipment.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including work around powerlines.	X				
	1926.1408 - Power line safety (up to 350 kV)--equipment operations.	**1926.1408(a)** *Hazard assessments and precautions inside the work zone* . Before beginning equipment operations, the employer must: **1926.1408(a)(1)** *Identify the work zone by either*: **1926.1408(a)(1)(i)** Demarcating boundaries (such as with flags, or a device such as a range limit device or range control warning device) and prohibiting the operator from operating the equipment past those boundaries, or **1926.1408(a)(1)(ii)** Defining the work zone as the area 360 degrees around the equipment, up to the equipment's maximum working radius. **1926.1408(a)(2)** Determine if any part of the equipment, load line or load (including rigging and lifting accessories), if operated up to the equipment's maximum working radius in the work zone, could get closer than 20 feet to a power line. If so, the employer must meet the requirements in Option (1), Option (2), or Option (3) of this section, as follows: **1926.1408(a)(2)(i)** *Option (1)--Deenergize and ground* . Confirm from the utility owner/operator that the power line has been deenergized and visibly grounded at the worksite. **1926.1408(a)(2)(ii)** *Option (2)--20 foot clearance* . Ensure that no part of the equipment, load line, or load (including rigging and lifting accessories), gets closer than 20 feet to the power line by implementing the measures specified in paragraph (b) of this section. **1926.1408(a)(2)(iii)** *Option (3)--Table A clearance* . **1926.1408(a)(2)(iii)(A)** Determine the line's voltage and the minimum approach distance permitted under Table A (*see* § 1926.1408). **1926.1408(a)(2)(iii)(B)** Determine if any part of the equipment, load line or load (including rigging and lifting accessories), while operating up to the equipment's maximum working radius in the work zone, could get closer than the minimum approach distance of the power line permitted under Table A (*see* § 1926.1408). If so, then the employer must follow the requirements in paragraph (b) of this section to ensure that no part of the equipment, load line, or load (including rigging and lifting accessories), gets closer to the line than the minimum approach distance. **1926.1408(b)** *Preventing encroachment/electrocution* . Where encroachment precautions are required under Option (2) or Option (3) of this section, all of the following requirements must be met: **1926.1408(b)(1)** Conduct a planning meeting with the operator and the other workers who will be in the area of the equipment or load to review the location of the power line(s), and the steps that will be implemented to prevent encroachment/electrocution. **1926.1408(b)(2)** If tag lines are used, they must be non-conductive. **1926.1408(b)(3)** Erect and maintain an elevated warning line, barricade, or line of signs, in view of the operator, equipped with flags or similar high-visibility markings, at 20 feet from the power line (if using Option (2) of this section) or at the minimum approach distance under Table A (*see* § 1926.1408) (if using Option (3) of this section). If the operator is unable to see the elevated warning line, a dedicated spotter must be used as described in § 1926.1408(b)(4)(ii) in addition to implementing one of the measures described in § § 1926.1408(b)(4)(i), (iii), (iv) and (v). **1926.1408(b)(4)** Implement at least one of the following measures: **1926.1408(b)(4)(i)** A proximity alarm set to give the operator sufficient warning to prevent encroachment. **1926.1408(b)(4)(ii)** A dedicated spotter who is in continuous contact with the operator. Where this measure is selected, the dedicated spotter must: **1926.1408(b)(4)(ii)(A)** Be equipped with a visual aid to assist in identifying the minimum clearance distance. Examples of a visual aid include, but are not limited to: A clearly visible line painted on the ground; a clearly visible line of stanchions; a set of clearly visible line-of-sight landmarks (such as a fence post behind the dedicated spotter and a building corner ahead of the dedicated spotter). **1926.1408(b)(4)(ii)(B)** Be positioned to effectively gauge the clearance distance. **1926.1408(b)(4)(ii)(C)** Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator. **1926.1408(b)(4)(ii)(D)** Give timely information to the operator so that the required clearance distance can be maintained. **1926.1408(b)(4)(iii)** A device that automatically warns the operator when to stop movement, such as a range control warning device. Such a device must be set to give the operator sufficient warning to prevent encroachment. **1926.1408(b)(4)(iv)** A device that automatically limits range of movement, set to prevent encroachment. **1926.1408(b)(4)(v)** An insulating link/device, as defined in § 1926.1401, installed at a point between the end of the load line (or below) and the load. **1926.1408(b)(5)** The requirements of paragraph (b)(4) of this section do not apply to work covered by subpart V of this part. **1926.1408(c)** *Voltage information* . Where Option (3) of this section is used, the utility owner/operator of the power lines must provide the requested voltage information within two working days of the employer's request. **1926.1408(d)** *Operations below power lines* . **1926.1408(d)(1)** No part of the equipment, load line, or load (including rigging and lifting accessories) is allowed below a power line unless the employer has confirmed that the utility owner/operator has deenergized and (at the worksite) visibly grounded the power line, except where one of the exceptions in paragraph (d)(2) of this section applies. **1926.1408(d)(2)** *Exceptions* . Paragraph (d)(1) of this section is inapplicable where the employer demonstrates that one of the following applies: **1926.1408(d)(2)(i)** The work is covered by subpart V of this part. **1926.1408(d)(2)(ii)** For equipment with non-extensible booms: The uppermost part of the equipment, with the boom at true vertical, would be more than 20 feet below the plane of the power line or more than the Table A of this section minimum clearance distance below the plane of the power line. **1926.1408(d)(2)(iii)** For equipment with articulating or extensible booms: The uppermost part of the equipment, with the boom in the fully extended position, at true vertical, would be more than 20 feet below the plane of the power line or more than the Table A of this section minimum clearance distance below the plane of the power line. **1926.1408(d)(2)(iv)** The employer demonstrates that compliance with paragraph (d)(1) of this section is infeasible and meets the requirements of § 1926.1410. **1926.1408(e)** *Power lines presumed energized* . The employer must assume that all power lines are energized unless the utility owner/operator confirms that the power line has been and continues to be deenergized and visibly grounded at the worksite. **1926.1408(f)** When working near transmitter/communication towers where the equipment is close enough for an electrical charge to be induced in the equipment or materials being handled, the transmitter must be deenergized or the following precautions must be taken: **1926.1408(f)(1)** The equipment must be provided with an electrical ground. **1926.1408(f)(2)** If tag lines are used, they must be non-conductive.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including work around powerlines.	X				
	1926.1409 - Power line safety (over 350 kV).	The requirements of § 1926.1407 and § 1926.1408 apply to power lines over 350 kV except: **1926.1409(a)** For power lines at or below 1000 kV, wherever the distance "20 feet" is specified, the distance "50 feet" must be substituted; and **1926.1409(b)** For power lines over 1000 kV, the minimum clearance distance must be established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including work around powerlines.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1926.1410 - Power line safety (all voltages)--equipment operations closer than the Table A zone.	Equipment operations in which any part of the equipment, load line, or load (including rigging and lifting accessories) is closer than the minimum approach distance under Table A of § 1926.1408 to an energized power line is prohibited, except where the employer demonstrates that all of the following requirements are met: **1926.1410(a)** The employer determines that it is infeasible to do the work without breaching the minimum approach distance under Table A of § 1926.1408. **1926.1410(b)** The employer determines that, after consultation with the utility owner/operator, it is infeasible to deenergize and ground the power line or relocate the power line. **1926.1410(c)** *Minimum clearance distance* . **1926.1410(c)(1)** The power line owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution determines the minimum clearance distance that must be maintained to prevent electrical contact in light of the on-site conditions. The factors that must be considered in making this determination include, but are not limited to: Conditions affecting atmospheric conductivity; time necessary to bring the equipment, load line, and load (including rigging and lifting accessories) to a complete stop; wind conditions; degree of sway in the power line; lighting conditions, and other conditions affecting the ability to prevent electrical contact. **1926.1410(c)(2)** Paragraph (c)(1) of this section does not apply to work covered by Subpart V of this part; instead, for such work, the minimum approach distances established by the employer under § 1926.960(c)(1)(i) apply. **1926.1410(d)** A planning meeting with the employer and utility owner/operator (or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution) is held to determine the procedures that will be followed to prevent electrical contact and electrocution. At a minimum these procedures must include: **1926.1410(d)(1)** If the power line is equipped with a device that automatically reenergizes the circuit in the event of a power line contact, before the work begins, the automatic reclosing feature of the circuit interrupting device must be made inoperative if the design of the device permits. **1926.1410(d)(2)** A dedicated spotter who is in continuous contact with the operator. The dedicated spotter must: **1926.1410(d)(2)(i)** Be equipped with a visual aid to assist in identifying the minimum clearance distance. Examples of a visual aid include, but are not limited to: A line painted on the ground; a clearly visible line of stanchions; a set of clearly visible line-of-sight landmarks (such as a fence post behind the dedicated spotter and a building corner ahead of the dedicated spotter). **1926.1410(d)(2)(ii)** Be positioned to effectively gauge the clearance distance. **1926.1410(d)(2)(iii)** Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator. **1926.1410(d)(2)(iv)** Give timely information to the operator so that the required clearance distance can be maintained. **1926.1410(d)(3)** An elevated warning line, or barricade (not attached to the crane), in view of the operator (either directly or through video equipment), equipped with flags or similar high-visibility markings, to prevent electrical contact. However, this provision does not apply to work covered by subpart V of this part. **1926.1410(d)(4)** *Insulating link/device* . **1926.1410(d)(4)(i)** An insulating link/device installed at a point between the end of the load line (or below) and the load. **1926.1410(d)(4)(ii)** Paragraph (d)(4)(i) of this section does not apply to work covered by Subpart V of this part.**1926.1410(d)(4)(iv)** Until November 8, 2011, the following procedure may be substituted for the requirement in paragraph (d)(4)(i) of this section: All employees, excluding equipment operators located on the equipment, who may come in contact with the equipment, the load line, or the load must be insulated or guarded from the equipment, the load line, and the load. Insulating gloves rated for the voltage involved are adequate insulation for the purposes of this paragraph. **1926.1410(d)(4)(v)** Until November 8, 2013, the following procedure may be substituted for the requirement in (d)(4)(i) of this section: **1926.1410(d)(4)(v)(A)** The employer must use a link/device manufactured on or before November 8, 2011, that meets the definition of an insulating link/device, except that it has not been approved by a Nationally Recognized Testing Laboratory, and that is maintained and used in accordance with manufacturer requirements and recommendations, and is installed at a point between the end of the load line (or below) and the load; and **1926.1410(d)(4)(v)(B)** All employees, excluding equipment operators located on the equipment, who may come in contact with the equipment, the load line, or the load must be insulated or guarded from the equipment, the load line, and the load through an additional means other than the device described in paragraph (d)(4)(v)(A) of this section. Insulating gloves rated for the voltage involved are adequate additional means of protection for the purposes of this paragraph. **1926.1410(d)(5)** Nonconductive rigging if the rigging may be within the Table A of § 1926.1408 distance during the operation. **1926.1410(d)(6)** If the equipment is equipped with a device that automatically limits range of movement, it must be used and set to prevent any part of the equipment, load line, or load (including rigging and lifting accessories) from breaching the minimum approach distance established under paragraph (c) of this section. **1926.1410(d)(7)** If a tag line is used, it must be of the nonconductive type. **1926.1410(d)(8)** Barricades forming a perimeter at least 10 feet away from the equipment to prevent unauthorized personnel from entering the work area. In areas where obstacles prevent the barricade from being at least 10 feet away, the barricade must be as far from the equipment as feasible. **1926.1410(d)(9)** Workers other than the operator must be prohibited from touching the load line above the insulating link/device and crane. Operators remotely operating the equipment from the ground must use either wireless controls that isolate the operator from the equipment or insulating mats that insulate the operator from the ground. **1926.1410(d)(10)** Only personnel essential to the operation are permitted to be in the area of the crane and load. **1926.1410(d)(11)** The equipment must be properly grounded. **1926.1410(d)(12)** Insulating line hose or cover-up must be installed by the utility owner/operator except where such devices are unavailable for the line voltages involved. **1926.1410(e)** The procedures developed to comply with paragraph (d) of this section are documented and immediately available on-site. **1926.1410(f)** The equipment user and utility owner/operator (or registered professional engineer) meet with the equipment operator and the other workers who will be in the area of the equipment or load to review the procedures that will be implemented to prevent breaching the minimum approach distance established in paragraph (c) of this section and prevent electrocution. **1926.1410(g)** The procedures developed to comply with paragraph (d) of this section are implemented. **1926.1410(h)** The utility owner/operator (or registered professional engineer) and all employers of employees involved in the work must identify one person who will direct the implementation of the procedures. The person identified in accordance with this paragraph must direct the implementation of the procedures and must have the authority to stop work at any time to ensure safety. **1926.1410(i)** If a problem occurs implementing the procedures being used to comply with paragraph (d) of this section, or indicating that those procedures are inadequate to prevent electrocution, the employer must safely stop operations and either develop new procedures to comply with paragraph (d) of this section or have the utility owner/operator deenergize and visibly ground or relocate the power line before resuming work. **1926.1410(k)** Devices originally designed by the manufacturer for use as a safety device (*see* § 1926.1415), operational aid, or a means to prevent power line contact or electrocution, when used to comply with this section, must comply with the manufacturer's procedures for use and conditions of use. **1926.1410(m)** The employer must train each operator and crew member assigned to work with the equipment in accordance with § 1926.1408(g).	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including work around powerlines.	X				
	1926.1411 - Power line safety-while traveling under or near power lines with no load.	**1926.1411(a)** This section establishes procedures and criteria that must be met for equipment traveling under or near a power line on a construction site with no load. Equipment traveling on a construction site with a load is governed by §§1926.1408, 1926.1409 or 1926.1410, whichever is appropriate, and §1926.1417(u). **1926.1411(b)** The employer must ensure that: **1926.1411(b)(1)** The boom/mast and boom/mast support system are lowered sufficiently to meet the requirements of this paragraph. **1926.1411(b)(2)** The clearances specified in Table T of this section are maintained. **1926.1411(b)(3)** The effects of speed and terrain on equipment movement (including movement of the boom/mast) are considered so that those effects do not cause the minimum clearance distances specified in Table T of this section to be breached. **1926.1411(b)(4)** *Dedicated spotter* . If any part of the equipment while traveling will get closer than 20 feet to the power line, the employer must ensure that a dedicated spotter who is in continuous contact with the driver/operator is used. The dedicated spotter must: **1926.1411(b)(4)(i)** Be positioned to effectively gauge the clearance distance. **1926.1411(b)(4)(ii)** Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator. **1926.1411(b)(4)(iii)** Give timely information to the operator so that the required clearance distance can be maintained. **1926.1411(b)(5)** *Additional precautions for traveling in poor visibility* . When traveling at night, or in conditions of poor visibility, in addition to the measures specified in paragraphs (b)(1) through (4) of this section, the employer must ensure that: **1926.1411(b)(5)(i)** The power lines are illuminated or another means of identifying the location of the lines is used. **1926.1411(b)(5)(ii)** A safe path of travel is identified and used. Table T-Minimum Clearance Distances While Traveling With No Load	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific criteria for working near powerlines.	X				
	1926.1412 - Inspections	**1926.1412(a)** *Modified equipment* . **1926.1412(a)(1)** Equipment that has had modifications or additions which affect the safe operation of the equipment (such as modifications or additions involving a safety device or operational aid, critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) or capacity must be inspected by a qualified person after such modifications/additions have been completed, prior to initial use. The inspection must meet all of the following requirements: **1926.1412(a)(1)(i)** The inspection must assure that the modifications or additions have been done in accordance with the approval obtained pursuant to § 1926.1434 (Equipment modifications). **1926.1412(a)(1)(ii)** The inspection must include functional testing of the equipment. **1926.1412(a)(2)** Equipment must not be used until an inspection under this paragraph demonstrates that the requirements of paragraph (a)(1)(i) of this section have been met. **1926.1412(b)** *Repaired/adjusted equipment* . **1926.1412(b)(1)** Equipment that has had a repair or adjustment that relates to safe operation (such as: A repair or adjustment to a safety device or operator aid, or to a critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism), must be inspected by a qualified person after such a repair or adjustment has been completed, prior to initial use. The inspection must meet all of the following requirements: **1926.1412(b)(1)(i)** The qualified person must determine if the repair/adjustment meets manufacturer equipment criteria (where applicable and available). **1926.1412(b)(1)(ii)** Where manufacturer equipment criteria are unavailable or inapplicable, the qualified person must: **1926.1412(b)(1)(ii)(A)** Determine if a registered professional engineer (RPE) is needed to develop criteria for the repair/adjustment. If an RPE is not needed, the employer must ensure that the criteria are developed by the qualified person. If an RPE is needed, the employer must ensure that they are developed by an RPE. **1926.1412(b)(1)(ii)(B)** Determine if the repair/adjustment meets the criteria developed in accordance with paragraph (b)(1)(ii)(A) of this section. **1926.1412(b)(1)(iii)** The inspection must include functional testing of the repaired/adjusted parts and other components that may be affected by the repair/adjustment. **1926.1412(b)(4)** Equipment must not be used until an inspection under this paragraph demonstrates that the repair/adjustment meets the requirements of paragraph (b)(1)(i) of this section (or, where applicable, paragraph (b)(1)(ii) of this section). **1926.1412(c)** *Post-assembly* . **1926.1412(c)(1)** Upon completion of assembly, the equipment must be inspected by a qualified person to assure that it is configured in accordance with manufacturer equipment criteria. **1926.1412(c)(2)** Where manufacturer equipment criteria are unavailable, a qualified person must: **1926.1412(c)(2)(i)** Determine if a registered professional engineer (RPE) familiar with the type of equipment involved is needed to develop criteria for the equipment configuration. If an RPE is not needed, the employer must ensure that the criteria are developed by the qualified person. If an RPE is needed, the employer must ensure that they are developed by an RPE. **1926.1412(c)(2)(ii)** Determine if the equipment meets the criteria developed in accordance with paragraph (c)(2)(i) of this section. **1926.1412(c)(3)** Equipment must not be used until an inspection under this paragraph demonstrates that the equipment is configured in accordance with the applicable criteria. **1926.1412(d)** *Each shift* . **1926.1412(d)(1)** A competent person must begin a visual inspection prior to each shift the equipment will be used, which must be completed before or during that shift. The inspection must consist of observation for apparent deficiencies. Taking apart equipment components and booming down is not required as part of this inspection unless the results of the visual inspection or trial operation indicate that further investigation necessitating taking apart equipment components or booming down is needed. Determinations made in conducting the inspection must be reassessed in light of observations made during operation. At a minimum the inspection must include all of the following: **1926.1412(d)(1)(i)** Control mechanisms for maladjustments interfering with proper operation. **1926.1412(d)(1)(ii)** Control and drive mechanisms for apparent excessive wear of components and contamination by lubricants, water or other foreign matter. **1926.1412(d)(1)(iii)** Air, hydraulic, and other pressurized lines for deterioration or leakage, particularly those which flex in normal operation. **1926.1412(d)(1)(iv)** Hydraulic system for proper fluid level. **1926.1412(d)(1)(v)** Hooks and latches for deformation, cracks, excessive wear, or damage such as from chemicals or heat. **1926.1412(d)(1)(vi)** Wire rope reeving for compliance with the manufacturer's specifications. **1926.1412(d)(1)(vii)** Wire rope, in accordance with § 1926.1413(a). **1926.1412(d)(1)(viii)** Electrical apparatus for malfunctioning, signs of apparent excessive deterioration, dirt or moisture accumulation. **1926.1412(d)(1)(ix)** Tires (when in use) for proper inflation and condition. **1926.1412(d)(1)(x)** Ground conditions around the equipment for proper support, including ground settling under and around outriggers/stabilizers and supporting foundations, ground water accumulation, or similar conditions. This paragraph does not apply to the inspection of ground conditions for railroad tracks and their underlying support when the railroad tracks are part of the general railroad system of transportation that is regulated pursuant to the Federal Railroad Administration under 49 CFR part 213. **1926.1412(d)(1)(xi)** The equipment for level position within the tolerances specified by the equipment manufacturer's recommendations, both before each shift and after each move and setup. **1926.1412(d)(1)(xii)** Operator cab windows for significant cracks, breaks, or other deficiencies that would hamper the operator's view. **1926.1412(d)(1)(xiii)** Rails, rail stops, rail clamps and supporting surfaces when the equipment has rail traveling. This paragraph does not apply to the inspection of rails, rail stops, rail clamps and supporting surfaces when the railroad tracks are part of the general railroad system of transportation that is regulated pursuant to the Federal Railroad Administration under 49 CFR part 213. **1926.1412(d)(1)(xiv)** Safety devices and operational aids for proper operation. **1926.1412(d)(2)** If any deficiency in paragraphs (d)(1)(i) through (xiii) of this section (or in additional inspection items required to be checked for specific types of equipment in accordance with other sections of this standard) is identified, an immediate determination must be made by the competent person as to whether the deficiency constitutes a safety hazard. If the deficiency is determined to constitute a safety hazard, the equipment must be taken out of service until it has been corrected. *See* § 1926.1417. **1926.1412(d)(3)** If any deficiency in paragraph (d)(1)(xiv) of this section (safety devices/operational aids) is identified, the action specified in § 1926.1415 and § 1926.1416 must be taken prior to using the equipment. **1926.1412(e)** *Monthly* . **1926.1412(e)(1)** Each month the equipment is in service it must be inspected in accordance with paragraph (d) of this section (each shift). **1926.1412(e)(2)** Equipment must not be used until an inspection under this paragraph demonstrates that no	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific inspection	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1926.1412 - Inspections.	corrective action under paragraphs (d)(2) and (3) of this section is required. **1926.1412(e)(3)** *Documentation* . **1926.1412(e)(3)(i)** The following information must be documented and maintained by the employer that conducts the inspection: **1926.1412(e)(3)(i)(A)** The items checked and the results of the inspection. **1926.1412(e)(3)(i)(B)** The name and signature of the person who conducted the inspection and the date. **1926.1412(e)(3)(ii)** This document must be retained for a minimum of three months. **1926.1412(f)** *Annual/comprehensive* . **1926.1412(f)(1)** At least every 12 months the equipment must be inspected by a qualified person in accordance with paragraph (d) of this section (each shift) except that the corrective action set forth in paragraphs (f)(4), (f)(5), and (f)(6) of this section must apply in place of the corrective action required by paragraphs (d)(2) and (d)(3) of this section. **1926.1412(f)(2)** In addition, at least every 12 months, the equipment must be inspected by a qualified person. Disassembly is required, as necessary, to complete the inspection. The equipment must be inspected for all of the following: **1926.1412(f)(2)(i)** Equipment structure (including the boom and, if equipped, the jib): **1926.1412(f)(2)(i)(A)** Structural members: Deformed, cracked, or significantly corroded. **1926.1412(f)(2)(i)(B)** Bolts, rivets and other fasteners: loose, failed or significantly corroded. **1926.1412(f)(2)(i)(C)** Welds for cracks. **1926.1412(f)(2)(ii)** Sheaves and drums for cracks or significant wear. **1926.1412(f)(2)(iii)** Parts such as pins, bearings, shafts, gears, rollers and locking devices for distortion, cracks or significant wear. **1926.1412(f)(2)(iv)** Brake and clutch system parts, linings, pawls and ratchets for excessive wear. **1926.1412(f)(2)(v)** Safety devices and operational aids for proper operation (including significant inaccuracies). **1926.1412(f)(2)(vi)** Gasoline, diesel, electric, or other power plants for safety-related problems (such as leaking exhaust and emergency shut-down feature) and conditions, and proper operation. **1926.1412(f)(2)(vii)** Chains and chain drive sprockets for excessive wear of sprockets and excessive chain stretch. **1926.1412(f)(2)(viii)** Travel steering, brakes, and locking devices, for proper operation. **1926.1412(f)(2)(ix)** Tires for damage or excessive wear. **1926.1412(f)(2)(x)** Hydraulic, pneumatic and other pressurized hoses, fittings and tubing, as follows: **1926.1412(f)(2)(x)(A)** Flexible hose or its junction with the fittings for indications of leaks. **1926.1412(f)(2)(x)(B)** Threaded or clamped joints for leaks. **1926.1412(f)(2)(x)(C)** Outer covering of the hose for blistering, abnormal deformation or other signs of failure/impending failure. **1926.1412(f)(2)(x)(D)** Outer surface of a hose, rigid tube, or fitting for indications of excessive abrasion or scrubbing. **1926.1412(f)(2)(xi)** Hydraulic and pneumatic pumps and motors, as follows: **1926.1412(f)(2)(xi)(A)** Performance indicators: Unusual noises or vibration, low operating speed, excessive heating of the fluid, low pressure. **1926.1412(f)(2)(xi)(B)** Loose bolts or fasteners. **1926.1412(f)(2)(xi)(C)** Shaft seals and joints between pump sections for leaks. **1926.1412(f)(2)(xii)** Hydraulic and pneumatic valves, as follows: **1926.1412(f)(2)(xii)(A)** Spools: Sticking, improper return to neutral, and leaks. **1926.1412(f)(2)(xii)(B)** Leaks. **1926.1412(f)(2)(xii)(C)** Valve housing cracks. **1926.1412(f)(2)(xii)(D)** Relief valves: Failure to reach correct pressure (if there is a manufacturer procedure for checking pressure, it must be followed). **1926.1412(f)(2)(xiii)** Hydraulic and pneumatic cylinders, as follows: **1926.1412(f)(2)(xiii)(A)** Drifting caused by fluid leaking across the piston. **1926.1412(f)(2)(xiii)(B)** Rod seals and welded joints for leaks. **1926.1412(f)(2)(xiii)(C)** Cylinder rods for scores, nicks, or dents. **1926.1412(f)(2)(xiii)(D)** Case (barrel) for significant dents. **1926.1412(f)(2)(xiii)(E)** Rod eyes and connecting joints: Loose or deformed. **1926.1412(f)(2)(xiv)** Outrigger or stabilizer pads/floats for excessive wear or cracks. **1926.1412(f)(2)(xv)** Slider pads for excessive wear or cracks. **1926.1412(f)(2)(xvi)** Electrical components and wiring for cracked or split insulation and loose or corroded terminations. **1926.1412(f)(2)(xvii)** Warning labels and decals originally supplied with the equipment by the manufacturer or otherwise required under this standard: Missing or unreadable. **1926.1412(f)(2)(xviii)** Originally equipped operator seat (or equivalent): Missing. **1926.1412(f)(2)(xix)** Operator seat: Unserviceable. **1926.1412(f)(2)(xx)** Originally equipped steps, ladders, handrails, guards: Missing. **1926.1412(f)(2)(xxi)** Steps, ladders, handrails, guards: In unusable/unsafe condition. **1926.1412(f)(3)** This inspection must include functional testing to determine that the equipment as configured in the inspection is functioning properly. **1926.1412(f)(4)** If any deficiency is identified, an immediate determination must be made by the qualified person as to whether the deficiency constitutes a safety hazard or, though not yet a safety hazard, needs to be monitored in the monthly inspections. **1926.1412(f)(5)** If the qualified person determines that a deficiency is a safety hazard, the equipment must be taken out of service until it has been corrected, except when temporary alternative measures are implemented as specified in § 1926.1416(d) or § 1926.1435(e). *See* § 1926.1417. **1926.1412(f)(6)** If the qualified person determines that, though not presently a safety hazard, the deficiency needs to be monitored, the employer must ensure that the deficiency is checked in the monthly inspections. **1926.1412(f)(7)** *Documentation of annual/comprehensive inspection* . The following information must be documented, maintained, and retained for a minimum of 12 months, by the employer that conducts the inspection: **1926.1412(f)(7)(i)** The items checked and the results of the inspection. **1926.1412(f)(7)(ii)** The name and signature of the person who conducted the inspection and the date. **1926.1412(g)** *Severe service* . Where the severity of use/conditions is such that there is a reasonable probability of damage or excessive wear (such as loading that may have exceeded rated capacity, shock loading that may have exceeded rated capacity, prolonged exposure to a corrosive atmosphere), the employer must stop using the equipment and a qualified person must: **1926.1412(g)(1)** Inspect the equipment for structural damage to determine if the equipment can continue to be used safely. **1926.1412(g)(2)** In light of the use/conditions determine whether any items/conditions listed in paragraph (f) of this section need to be inspected; if so, the qualified person must inspect those items/conditions. **1926.1412(g)(3)** If a deficiency is found, the employer must follow the requirements in paragraphs (f)(4) through (6) of this section. **1926.1412(h)** *Equipment not in regular use* . Equipment that has been idle for 3 months or more must be inspected by a qualified person in accordance with the requirements of paragraph (e) (Monthly) of this section before initial use. **1926.1412(j)** Any part of a manufacturer's procedures regarding inspections that relate to safe operation (such as to a safety device or operational aid, critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) that is more comprehensive or has a more frequent schedule of inspection than the requirements of this section must be followed. **1926.1412(k)** All documents produced under this section must be available, during the applicable document retention period, to all persons who conduct inspections under this section.	Partial	Silent on many individual provisions of the regulation, including specific inspection requirements.	X				
	1926.1413 - Wire rope--inspection.	**1926.1413(a)** *Shift inspection* . **1926.1413(a)(1)** A competent person must begin a visual inspection prior to each shift the equipment is used, which must be completed before or during that shift. The inspection must consist of observation of wire ropes (running and standing) that are likely to be in use during the shift for apparent deficiencies, including those listed in paragraph (a)(2) of this section. Untwisting (opening) of wire rope or booming down is not required as part of this inspection. **1926.1413(a)(2)** *Apparent deficiencies* . **1926.1413(a)(2)(i)** *Category I* . Apparent deficiencies in this category include the following: **1926.1413(a)(2)(i)(A)** Significant distortion of the wire rope structure such as kinking, crushing, unstranding, birdcaging, signs of core failure or steel core protrusion between the outer strands. **1926.1413(a)(2)(i)(B)** Significant corrosion. **1926.1413(a)(2)(i)(C)** Electric arc damage (from a source other than power lines) or heat damage. **1926.1413(a)(2)(i)(D)** Improperly applied end connections. **1926.1413(a)(2)(i)(E)** Significantly corroded, cracked, bent, or worn end connections (such as from severe service). **1926.1413(a)(2)(ii)** *Category II* . Apparent deficiencies in this category are: **1926.1413(a)(2)(ii)(A)** Visible broken wires, as follows: **1926.1413(a)(2)(ii)(A)(1)** In running wire ropes: Six randomly distributed broken wires in one strand in one rope lay, where a rope lay is the length along the rope in which one strand makes a complete revolution around the rope. **1926.1413(a)(2)(ii)(A)(2)** In rotation resistant ropes: Two randomly distributed broken wires in six rope diameters or four randomly distributed broken wires in 30 rope diameters. **1926.1413(a)(2)(ii)(A)(3)** In pendants or standing wire ropes: More than two broken wires in one rope lay located in rope beyond end connections and/or more than one broken wire in a rope lay located at an end connection. **1926.1413(a)(2)(ii)(B)** A diameter reduction of more than 5% from nominal diameter. **1926.1413(a)(2)(iii)** *Category III* . Apparent deficiencies in this category include the following: **1926.1413(a)(2)(iii)(A)** In rotation resistant wire rope, core protrusion or other distortion indicating core failure. **1926.1413(a)(2)(iii)(B)** Prior electrical contact with a power line. **1926.1413(a)(2)(iii)(C)** A broken strand. **1926.1413(a)(3)** *Critical review items* . The competent person must give particular attention to all of the following: **1926.1413(a)(3)(i)** Rotation resistant wire rope in use. **1926.1413(a)(3)(ii)** Wire rope being used for boom hoists and luffing hoists, particularly at reverse bends. **1926.1413(a)(3)(iii)** Wire rope at flange points, crossover points and repetitive pickup points on drums. **1926.1413(a)(3)(iv)** Wire rope at or near terminal ends. **1926.1413(a)(3)(v)** Wire rope in contact with saddles, equalizer sheaves or other sheaves where rope travel is limited. **1926.1413(a)(4)** *Removal from service* . **1926.1413(a)(4)(i)** If a deficiency in Category I (*see* paragraph (a)(2)(i) of this section) is identified, an immediate determination must be made by the competent person as to whether the deficiency constitutes a safety hazard. If the deficiency is determined to constitute a safety hazard, operations involving use of the wire rope in question must be prohibited until: **1926.1413(a)(4)(i)(A)** The wire rope is replaced (*see* § 1926.1417), or **1926.1413(a)(4)(i)(B)** If the deficiency is localized, the problem is corrected by severing the wire rope in two; the undamaged portion may continue to be used. Joining lengths of wire rope by splicing is prohibited. If a rope is shortened under this paragraph, the employer must ensure that the drum will still have two wraps of wire when the load and/or boom is in its lowest position. **1926.1413(a)(4)(ii)** If a deficiency in Category II (*see* paragraph (a)(2)(ii) of this section) is identified, operations involving use of the wire rope in question must be prohibited until: **1926.1413(a)(4)(ii)(A)** The employer complies with the wire rope manufacturer's established criterion for removal from service or a different criterion that the wire rope manufacturer has approved in writing for that specific wire rope (*see* § 1926.1417), **1926.1413(a)(4)(ii)(B)** The wire rope is replaced (*see* § 1926.1417), or **1926.1413(a)(4)(ii)(C)** If the deficiency is localized, the problem is corrected by severing the wire rope in two; the undamaged portion may continue to be used. Joining lengths of wire rope by splicing is prohibited. If a rope is shortened under this paragraph, the employer must ensure that the drum will still have two wraps of wire when the load and/or boom is in its lowest position. **1926.1413(a)(4)(iii)** If a deficiency in Category III is identified, operations involving use of the wire rope in question must be prohibited until: **1926.1413(a)(4)(iii)(A)** The wire rope is replaced (*see* § 1926.1417), or **1926.1413(a)(4)(iii)(B)** If the deficiency (other than power line contact) is localized, the problem is corrected by severing the wire rope in two; the undamaged portion may continue to be used. Joining lengths of wire rope by splicing is prohibited. Repair of wire rope that contacted an energized power line is also prohibited. If a rope is shortened under this paragraph, the employer must ensure that the drum will still have two wraps of wire when the load and/or boom is in its lowest position. **1926.1413(a)(4)(iv)** Where a wire rope is required to be removed from service under this section, either the equipment (as a whole) or the hoist with that wire rope must be tagged-out, in accordance with § 1926.1417(f)(1), until the wire rope is repaired or replaced. **1926.1413(b)** *Monthly inspection* . **1926.1413(b)(1)** Each month an inspection must be conducted in accordance with paragraph (a) (shift inspection) of this section. **1926.1413(b)(2)** The inspection must include any deficiencies that the qualified person who conducts the annual inspection determines under paragraph (c)(3)(ii) of this section must be monitored. **1926.1413(b)(3)** Wire ropes on equipment must not be used until an inspection under this paragraph demonstrates that no corrective action under paragraph (a)(4) of this section is required. **1926.1413(b)(4)** The inspection must be documented according to § 1926.1412(e)(3) (monthly inspection documentation). **1926.1413(c)** *Annual/comprehensive* . **1926.1413(c)(1)** At least every 12 months, wire ropes in use on equipment must be inspected by a qualified person in accordance with paragraph (a) of this section (shift inspection). **1926.1413(c)(2)** In addition, at least every 12 months, the wire ropes in use on equipment must be inspected by a qualified person, as follows: **1926.1413(c)(2)(i)** The inspection must be for deficiencies of the types listed in paragraph (a)(2) of this section. **1926.1413(c)(2)(ii)** The inspection must be complete and thorough, covering the surface of the entire length of the wire ropes, with particular attention given to all of the following: **1926.1413(c)(2)(ii)(A)** Critical review items listed in paragraph (a)(3) of this section. **1926.1413(c)(2)(ii)(B)** Those sections that are normally hidden during shift and monthly inspections. **1926.1413(c)(2)(ii)(C)** Wire rope subject to reverse bends. **1926.1413(c)(2)(ii)(D)** Wire rope passing over sheaves. **1926.1413(c)(2)(iii)** *Exception:* In the event an inspection under paragraph (c)(2) of this section is not feasible due to existing set-up and configuration of the equipment (such as where an assist crane is needed) or due to site conditions (such as a dense urban setting), such inspections must be conducted as soon as it becomes feasible, but no longer than an additional 6 months for running ropes and, for standing ropes, at the time of disassembly. **1926.1413(c)(3)** If a deficiency is identified, an immediate determination must be made by the qualified person as to whether the deficiency constitutes a safety hazard. **1926.1413(c)(3)(i)** If the deficiency is determined to constitute a safety hazard, operations involving use of the wire rope in question must be prohibited until: **1926.1413(c)(3)(i)(A)** The wire rope is replaced (*see* § 1926.1417), or **1926.1413(c)(3)(i)(B)** If the deficiency is localized, the problem is corrected by severing the wire rope in two; the undamaged portion may continue to be used. Joining lengths of wire rope by splicing is prohibited. If a rope is shortened under this paragraph, the employer must ensure that the drum will still have two wraps of wire when the load and/or boom is in its lowest position. **1926.1413(c)(3)(ii)** If the qualified person determines that, though not presently a safety hazard, the deficiency needs to be monitored, the employer must ensure that the deficiency is checked in the monthly inspections. **1926.1413(c)(4)** The inspection must be documented according to § 1926.1412(f)(7) (annual/comprehensive inspection documentation). **1926.1413(d)** Rope lubricants that are of the type that hinder inspection must not be used. **1926.1413(e)** All documents produced under this section must be available, during the applicable document retention period, to all persons who conduct inspections under this section.	No	Policy provides information about lifting and crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including operational aids.	X				
	1926.1414 - Wire rope--selection and installation criteria.	**1926.1414(a)** Original equipment wire rope and replacement wire rope must be selected and installed in accordance with the requirements of this section. Selection of replacement wire rope must be in accordance with the recommendations of the wire rope manufacturer, the equipment manufacturer, or a qualified person. **1926.1414(b)** *Wire rope design criteria:* Wire rope (other than rotation resistant rope) must comply with either Option (1) or Option (2) of this section, as follows: **1926.1414(b)(1)** *Option (1)* . Wire rope must comply with section 5-1.7.1 of ASME B30.5-2004 (incorporated by reference, *see* § 1926.6) except that section's paragraph (c) must not apply. **1926.1414(b)(2)** *Option (2)* . Wire rope must be designed to have, in relation to the equipment's rated capacity, a sufficient minimum breaking force and design factor so that compliance with the applicable inspection provisions in § 1926.1413 will be an effective means of preventing sudden rope failure. **1926.1414(c)** Wire rope must be compatible with the safe functioning of the equipment. **1926.1414(d)** *Boom hoist reeving* . **1926.1414(d)(1)** Fiber core ropes must not be used for boom hoist reeving, except for derricks. **1926.1414(d)(2)** Rotation resistant ropes must be used for boom hoist reeving only where the requirements of paragraph (e)(4)(ii) of this section are met. **1926.1414(e)** *Rotation resistant ropes* . **1926.1414(e)(1)** *Definitions* . **1926.1414(e)(1)(i)** *Type I rotation resistant wire rope ("Type I")* . Type I rotation resistant rope is stranded rope constructed to have little or no tendency to rotate or, if guided, transmits little or no torque. It has at least 15 outer strands and comprises an assembly of at least three layers of strands laid helically over a center in two operations. The direction of lay of the outer strands is opposite to that of the underlying layer. **1926.1414(e)(1)(ii)** *Type II rotation resistant wire rope ("Type II")* . Type II rotation resistant rope is stranded rope constructed to have significant resistance to rotation. It has at least 10 outer strands and comprises an assembly of two or more layers of strands laid helically over a center in two or three operations. The direction of lay of the outer strands is opposite to that of the underlying layer. **1926.1414(e)(1)(iii)** *Type III rotation resistant wire rope ("Type III")* . Type III rotation resistant rope is stranded rope constructed to have limited resistance to rotation. It has no more than nine outer strands, and comprises an assembly of two layers of strands laid helically over a center in two operations. The direction of lay of the outer strands is opposite to that of the underlying layer. **1926.1414(e)(2)** *Requirements* . **1926.1414(e)(2)(i)** Types II and III with an operating design factor of less than 5 must not be used for duty cycle or repetitive lifts. **1926.1414(e)(2)(ii)** Rotation resistant ropes (including Types I, II and III) must have an operating design factor of no less than 3.5. **1926.1414(e)(2)(iii)** Type I must have an operating design factor of no less than 5, except where the wire rope manufacturer and the equipment manufacturer approves the design factor, in writing. **1926.1414(e)(2)(iv)** Types II and III must have an operating design factor of no less than 5, except where the requirements of paragraph (e)(3) of this section are met. **1926.1414(e)(3)** When Types II and III with an operating design factor of less than 5 are used (for non-duty cycle, non-repetitive lifts), the following requirements must be met for each lifting operation: **1926.1414(e)(3)(i)** A qualified person must inspect the rope in accordance with § 1926.1413(a). The rope must be used only if the qualified person determines that there are no deficiencies constituting a hazard. In making this determination, more than one broken wire in any one rope lay must be considered a hazard. **1926.1414(e)(3)(ii)** Operations must be conducted in such a manner and at such speeds as to minimize dynamic effects. **1926.1414(e)(3)(iii)** Each lift made under § 1926.1414(e)(3) must be recorded in the monthly and annual inspection documents. Such prior uses must be considered by the qualified person in determining whether to use the rope again. **1926.1414(e)(4)** *Additional requirements for rotation resistant ropes for boom hoist reeving* . **1926.1414(e)(4)(i)** Rotation resistant ropes must not be used for boom hoist reeving, except where the requirements of paragraph (e)(4)(ii) of this section are met. **1926.1414(e)(4)(ii)** Rotation resistant ropes may be used as boom hoist reeving when load hoists are used as boom hoists for attachments such as luffing attachments or boom and mast attachment systems. Under these conditions, all of the following requirements must be met: **1926.1414(e)(4)(ii)(A)** The drum must provide a first layer rope pitch diameter of not less than 18 times the nominal diameter of the rope used. **1926.1414(e)(4)(ii)(B)** The requirements in § 1926.1426(a) (irrespective of the date of manufacture of the equipment), and § 1926.1426(b). **1926.1414(e)(4)(ii)(C)** The requirements in ASME B30.5-2004 sections 5-1.3.2(a), (a)(2) through (a)(4), (b) and (d) (incorporated by reference, *see* § 1926.6) except that the minimum pitch diameter for sheaves used in multiple rope reeving is 18 times the nominal diameter of the rope used (instead of the value of 16 specified in section 5-1.3.2(d)). **1926.1414(e)(4)(ii)(D)** All sheaves used in the boom hoist reeving system must have a rope pitch diameter of not less than 18 times the nominal diameter of the rope used. **1926.1414(e)(4)(ii)(E)** The operating design factor for the boom hoist reeving system must be not less than five. **1926.1414(e)(4)(ii)(F)** The operating design factor for these ropes must be the total minimum breaking force of all parts of rope in the system divided by the load imposed on the rope system when supporting the static weights of the structure and the load within the equipment's rated capacity. **1926.1414(e)(4)(ii)(G)** When provided, a power-controlled lowering system must be capable of handling rated capacities and speeds as specified by the manufacturer. **1926.1414(f)** Wire rope clips used in conjunction with wedge sockets must be attached to the unloaded dead end of the rope only, except that the use of devices specifically designed for dead-ending rope in a wedge socket is permitted. **1926.1414(g)** Socketing must be done in the manner specified by the manufacturer of the wire rope or fitting. **1926.1414(h)** Prior to cutting a wire rope, seizings must be placed on each side of the point to be cut. The length and number of seizings must be in accordance with the wire rope manufacturer's instructions.	No		X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1926.1415 - Safety devices.	**1926.1415(a)** *Safety devices* . The following safety devices are required on all equipment covered by this subpart, unless otherwise specified: **1926.1415(a)(1)** *Crane level indicator* . **1926.1415(a)(1)(i)** The equipment must have a crane level indicator that is either built into the equipment or is available on the equipment. **1926.1415(a)(1)(ii)** If a built-in crane level indicator is not working properly, it must be tagged-out or removed. If a removable crane level indicator is not working properly, it must be removed. **1926.1415(a)(1)(iii)** This requirement does not apply to portal cranes, derricks, floating cranes/derricks and land cranes/derricks on barges, pontoons, vessels or other means of flotation. **1926.1415(a)(2)** Boom stops, except for derricks and hydraulic booms. **1926.1415(a)(3)** Jib stops (if a jib is attached), except for derricks. **1926.1415(a)(4)** Equipment with foot pedal brakes must have locks. **1926.1415(a)(5)** Hydraulic outrigger jacks and hydraulic stabilizer jacks must have an integral holding device/check valve. **1926.1415(a)(6)** Equipment on rails must have rail clamps and rail stops, except for portal cranes. **1926.1415(a)(7)** *Horn* **1926.1415(a)(7)(i)** The equipment must have a horn that is either built into the equipment or is on the equipment and immediately available to the operator. **1926.1415(a)(7)(ii)** If a built-in horn is not working properly, it must be tagged-out or removed. If a removable horn is not working properly, it must be removed. **1926.1415(b)** *Proper operation required* . Operations must not begin unless all of the devices listed in this section are in proper working order. If a device stops working properly during operations, the operator must safely stop operations. If any of the devices listed in this section are not in proper working order, the equipment must be taken out of service and operations must not resume until the device is again working properly. *See* § 1926.1417 (Operation). Alternative measures are not permitted to be used.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific safety devices.	X				
	1926.1416 - Operational aids.	**1926.1416(a)** The devices listed in this section ("listed operational aids") are required on all equipment covered by this subpart, unless otherwise specified. **1926.1416(a)(1)** The requirements in paragraphs (e)(1), (e)(2), and (e)(3) of this section do not apply to articulating cranes. **1926.1416(a)(2)** The requirements in paragraphs (d)(3), (e)(1), and (e)(4) of this section apply only to those digger derricks manufactured after November 8, 2011. **1926.1416(b)** Operations must not begin unless the listed operational aids are in proper working order, except where an operational aid is being repaired the employer uses the specified temporary alternative measures. The time periods permitted for repairing defective operational aids are specified in paragraphs (d) and (e) of this section. More protective alternative measures specified by the crane/derrick manufacturer, if any, must be followed. **1926.1416(c)** If a listed operational aid stops working properly during operations, the operator must safely stop operations until the temporary alternative measures are implemented or the device is again working properly. If a replacement part is no longer available, the use of a substitute device that performs the same type of function is permitted and is not considered a modification under § 1926.1434. **1926.1416(d)** *Category I operational aids and alternative measures* . Operational aids listed in this paragraph that are not working properly must be repaired no later than 7 calendar days after the deficiency occurs. *Exception:* If the employer documents that it has ordered the necessary parts within 7 calendar days of the occurrence of the deficiency, the repair must be completed within 7 calendar days of receipt of the parts. *See* § 1926.1417(j) for additional requirements. **1926.1416(d)(1)** *Boom hoist limiting device* . **1926.1416(d)(1)(i)** For equipment manufactured after December 16, 1969, a boom hoist limiting device is required. *Temporary alternative measures (use at least one)* . One or more of the following methods must be used: **1926.1416(d)(1)(i)(A)** Use a boom angle indicator. **1926.1416(d)(1)(i)(B)** Clearly mark the boom hoist cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to keep the boom within the minimum allowable radius. In addition, install mirrors or remote video cameras and displays if necessary for the operator to see the mark. **1926.1416(d)(1)(i)(C)** Clearly mark the boom hoist cable (so that it can easily be seen by a spotter) at a point that will give the spotter sufficient time to signal the operator and have the operator stop the hoist to keep the boom within the minimum allowable radius. **1926.1416(d)(1)(ii)** If the equipment was manufactured on or before December 16, 1969, and is not equipped with a boom hoist limiting device, at least one of the measures in paragraphs (d)(1)(i)(A) through (C) of this section must be used. **1926.1416(d)(2)** *Luffing jib limiting device* . Equipment with a luffing jib must have a luffing jib limiting device. Temporary alternative measures are the same as in paragraph (d)(1)(i) of this section, except to limit the movement of the luffing jib rather than the boom hoist. **1926.1416(d)(3)** *Anti two-blocking device* . **1926.1416(d)(3)(i)** Telescopic boom cranes manufactured after February 28, 1992, must be equipped with a device which automatically prevents damage from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component). The device(s) must prevent such damage at all points where two-blocking could occur. *Temporary alternative measures:* Clearly mark the cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, and use a spotter when extending the boom. **1926.1416(d)(3)(ii)** *Lattice boom cranes* . **1926.1416(d)(3)(ii)(A)** Lattice boom cranes manufactured after Feb 28, 1992, must be equipped with a device that either automatically prevents damage and load failure from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component), or warns the operator in time for the operator to prevent two-blocking. The device must prevent such damage/failure or provide adequate warning for all points where two-blocking could occur. **1926.1416(d)(3)(ii)(B)** Lattice boom cranes and derricks manufactured after November 8, 2011 must be equipped with a device which automatically prevents damage and load failure from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component). The device(s) must prevent such damage/failure at all points where two-blocking could occur. **1926.1416(d)(3)(ii)(C)** *Exception* . The requirements in paragraphs (d)(3)(ii)(A) and (B) of this section do not apply to such lattice boom equipment when used for dragline, clamshell (grapple), magnet, drop ball, container handling, concrete bucket, marine operations that do not involve hoisting personnel, and pile driving work. **1926.1416(d)(3)(ii)(D)** *Temporary alternative measures* . Clearly mark the cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, or use a spotter. **1926.1416(d)(3)(iii)** Articulating cranes manufactured after December 31, 1999, that are equipped with a load hoist must be equipped with a device that automatically prevents damage from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component). The device must prevent such damage at all points where two-blocking could occur. *Temporary alternative measures:* When two-blocking could only occur with movement of the load hoist, clearly mark the cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, or use a spotter. When two-blocking could occur without movement of the load hoist, clearly mark the cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, and use a spotter when extending the boom. **1926.1416(e)** *Category II operational aids and alternative measures* . Operational aids listed in this paragraph that are not working properly must be repaired no later than 30 calendar days after the deficiency occurs. *Exception:* If the employer documents that it has ordered the necessary parts within 7 calendar days of the occurrence of the deficiency, and the part is not received in time to complete the repair in 30 calendar days, the repair must be completed within 7 calendar days of receipt of the parts. *See* § 1926.1417(j) for additional requirements. **1926.1416(e)(1)** *Boom angle or radius indicator* . The equipment must have a boom angle or radius indicator readable from the operator's station. *Temporary alternative measures:* Radii or boom angle must be determined by measuring the radii or boom angle with a measuring device. **1926.1416(e)(2)** Jib angle indicator if the equipment has a luffing jib. *Temporary alternative measures:* Radii or jib angle must be determined by ascertaining the main boom angle and then measuring the radii or jib angle with a measuring device. **1926.1416(e)(3)** Boom length indicator if the equipment has a telescopic boom, except where the rated capacity is independent of the boom length. *Temporary alternative measures* . One or more of the following methods must be used: **1926.1416(e)(3)(i)** Mark the boom with measured marks to calculate boom length, **1926.1416(e)(3)(ii)** Calculate boom length from boom angle and radius measurements, **1926.1416(e)(3)(iii)** Measure the boom with a measuring device. **1926.1416(e)(4)** *Load weighing and similar devices* . **1926.1416(e)(4)(i)** Equipment (other than derricks and articulating cranes) manufactured after March 29, 2003 with a rated capacity over 6,000 pounds must have at least one of the following: load weighing device, load moment (or rated capacity) indicator, or load moment (or rated capacity) limiter. *Temporary alternative measures:* The weight of the load must be determined from a source recognized by the industry (such as the load's manufacturer) or by a calculation method recognized by the industry (such as calculating a steel beam from measured dimensions and a known per foot weight). This information must be provided to the operator prior to the lift. **1926.1416(e)(4)(ii)** Articulating cranes manufactured after November 8, 2011 must have at least one of the following: automatic overload prevention device, load weighing device, load moment (or rated capacity) indicator, or load moment (rated capacity) limiter. *Temporary alternative measures:* The weight of the load must be determined from a source recognized by the industry (such as the load's manufacturer) or by a calculation method recognized by the industry (such as calculating a steel beam from measured dimensions and a known per foot weight). This information must be provided to the operator prior to the lift. **1926.1416(e)(5)** The following devices are required on equipment manufactured after November 8, 2011: **1926.1416(e)(5)(i)** Outrigger/stabilizer position (horizontal beam extension) sensor/monitor if the equipment has outriggers or stabilizers. *Temporary alternative measures:* The operator must verify that the position of the outriggers or stabilizers is correct (in accordance with manufacturer procedures) before beginning operations requiring outrigger or stabilizer deployment. **1926.1416(e)(5)(ii)** Hoist drum rotation indicator if the equipment has a hoist drum not visible from the operator's station. *Temporary alternative measures:* Mark the drum to indicate the rotation of the drum. In addition, install mirrors or remote video cameras and displays if necessary for the operator to see the mark.	No	Policy provides information about lifting and crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including operational aids.	X				
	1926.1417 - Operation.	**1926.1417(a)** The employer must comply with all manufacturer procedures applicable to the operational functions of equipment, including its use with attachments. **1926.1417(b)** *Unavailable operation procedures* . **1926.1417(b)(1)** Where the manufacturer procedures are unavailable, the employer must develop and ensure compliance with all procedures necessary for the safe operation of the equipment and attachments. **1926.1417(b)(2)** Procedures for the operational controls must be developed by a qualified person. **1926.1417(b)(3)** Procedures related to the capacity of the equipment must be developed and signed by a registered professional engineer familiar with the equipment. **1926.1417(c)** *Accessibility of procedures* . **1926.1417(c)(1)** The procedures applicable to the operation of the equipment, including rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions, and operator's manual, must be readily available in the cab at all times for use by the operator. **1926.1417(c)(2)** Where rated capacities are available in the cab only in electronic form: In the event of a failure which makes the rated capacities inaccessible, the operator must immediately cease operations or follow safe shut-down procedures until the rated capacities (in electronic or other form) are available. **1926.1417(d)** The operator must not engage in any practice or activity that diverts his/her attention while actually engaged in operating the equipment, such as the use of cellular phones (other than when used for signal communications). **1926.1417(e)** *Leaving the equipment unattended* . **1926.1417(e)(1)** The operator must not leave the controls while the load is suspended, except where all of the following are met: **1926.1417(e)(1)(i)** The operator remains adjacent to the equipment and is not engaged in any other duties. **1926.1417(e)(1)(ii)** The load is to be held suspended for a period of time exceeding normal lifting operations. **1926.1417(e)(1)(iii)** The competent person determines that it is safe to do so and implements measures necessary to restrain the boom hoist and telescoping, load, swing, and outrigger or stabilizer functions. **1926.1417(e)(1)(iv)** Barricades or caution lines, and notices, are erected to prevent all employees from entering the fall zone. No employees, including those listed in § § 1926.1425(b)(1) through (3), § 1926.1425(d) or § 1926.1425(e), are permitted in the fall zone. **1926.1417(e)(2)** The provisions in § 1926.1417(e)(1) do not apply to working gear (such as slings, spreader bars, ladders, and welding machines) where the weight of the working gear is negligible relative to the lifting capacity of the equipment as positioned, and the working gear is suspended over an area other than an entrance or exit. **1926.1417(f)** *Tag-out* . **1926.1417(f)(1)** *Tagging out of service equipment/functions* . Where the employer has taken the equipment out of service, a tag must be placed in the cab stating that the equipment is out of service and is not to be used. Where the employer has taken a function(s) out of service, a tag must be placed in a conspicuous position stating that the function is out of service and is not to be used. **1926.1417(f)(2)** *Response to "do not operate"/tag-out signs* . **1926.1417(f)(2)(i)** If there is a warning (tag-out or maintenance/do not operate) sign on the equipment or starting control, the operator must not activate the switch or start the equipment until the sign has been removed by a person authorized to remove it, or until the operator has verified that: **1926.1417(f)(2)(i)(A)** No one is servicing, working on, or otherwise in a dangerous position on the machine. **1926.1417(f)(2)(i)(B)** The equipment has been repaired and is working properly. **1926.1417(f)(2)(ii)** If there is a warning (tag-out or maintenance/do not operate) sign on any other switch or control, the operator must not activate that switch or control until the sign has been removed by a person authorized to remove it, or until the operator has verified that the requirements in paragraphs (f)(2)(i)(A) and (B) of this section have been met. **1926.1417(g)** Before starting the engine, the operator must verify that all controls are in the proper starting position and that all personnel are in the clear. **1926.1417(h)** *Storm warning* . When a local storm warning has been issued, the competent person must determine whether it is necessary to implement manufacturer recommendations for securing the equipment. **1926.1417(j)** If equipment adjustments or repairs are necessary: **1926.1417(j)(1)** The operator must, in writing, promptly inform the person designated by the employer to receive such information and, where there are successive shifts, to the next operator; and **1926.1417(j)(2)** The employer must notify all affected employees, at the beginning of each shift, of the necessary adjustments or repairs and all alternative measures. **1926.1417(k)** Safety devices and operational aids must not be used as a substitute for the exercise of professional judgment by the operator. **1926.1417(m)** If the competent person determines that there is a slack rope condition requiring re-spooling of the rope, it must be verified (before starting to lift) that the rope is seated on the drum and in the sheaves as the slack is removed. **1926.1417(n)** The competent person must adjust the equipment and/or operations to address the effect of wind, ice, and snow on equipment stability and rated capacity. **1926.1417(o)** *Compliance with rated capacity* . **1926.1417(o)(1)** The equipment must not be operated in excess of its rated capacity. **1926.1417(o)(2)** The operator must not be required to operate the equipment in a manner that would violate paragraph (o)(1) of this section. **1926.1417(o)(3)** *Load weight* . The operator must verify that the load is within the rated capacity of the equipment by at least one of the following methods: **1926.1417(o)(3)(i)** The weight of the load must be determined from a source recognized by the industry (such as the load's manufacturer), or by a calculation method recognized by the industry (such as calculating a steel beam from measured dimensions and a known per foot weight), or by other equally reliable means. In addition, when requested by the operator, this information must be provided to the operator prior to the lift; or **1926.1417(o)(3)(ii)** The operator must begin hoisting the load to determine, using a load weighing device, load moment indicator, rated capacity indicator, or rated capacity limiter, if it exceeds 75 percent of the maximum rated capacity at the longest radius that will be used during the lift operation. If it does, the operator must not proceed with the lift until he/she verifies the weight of the load in accordance with paragraph (o)(3)(i) of this section. **1926.1417(p)** The boom or other parts of the equipment must not contact any obstruction. **1926.1417(q)** The equipment must not be used to drag or pull loads sideways. **1926.1417(r)** On wheel-mounted equipment, no loads must be lifted over the front area, except as permitted by the manufacturer. **1926.1417(s)** The operator must test the brakes each time a load that is 90% or more of the maximum line pull is handled by lifting the load a few inches and applying the brakes. In duty cycle and repetitive lifts where each lift is 90% or more of the maximum line pull, this requirement applies to the first lift but not to successive lifts. **1926.1417(t)** Neither the load nor the boom must be lowered below the point where less than two full wraps of rope remain on their respective drums. **1926.1417(u)** *Traveling with a load* . **1926.1417(u)(1)** Traveling with a load is prohibited if the practice is prohibited by the manufacturer. **1926.1417(u)(2)** Where traveling with a load, the employer must ensure that: **1926.1417(u)(2)(i)** A competent person supervises the operation, determines if it is necessary to reduce rated capacity, and makes determinations regarding load position, boom location, ground support, travel route, overhead obstructions, and speed of movement necessary to ensure safety. **1926.1417(u)(2)(ii)** The determinations of the competent person required in paragraph (u)(2)(i) of this section are implemented. **1926.1417(u)(2)(iii)** For equipment with tires, tire pressure specified by the manufacturer is maintained. **1926.1417(v)** Rotational speed of the equipment must be such that the load does not swing out beyond the radius at which it can be controlled. **1926.1417(w)** A tag or restraint line must be used if necessary to prevent rotation of the load that would be hazardous. **1926.1417(x)** The brakes must be adjusted in accordance with manufacturer procedures to prevent unintended movement. **1926.1417(y)** The operator must obey a stop (or emergency stop) signal, irrespective of who gives it. **1926.1417(z)** *Swinging locomotive cranes* . A locomotive crane must not be swung into a position where railway cars on an adjacent track could strike it, until it is determined that cars are not being moved on the adjacent track and that proper flag protection has been established. **1926.1417(aa)** *Counterweight/ballast* . **1926.1417(aa)(1)** The following applies to equipment other than tower cranes: **1926.1417(aa)(1)(i)** Equipment must not be operated without the counterweight or ballast in place as specified by the manufacturer. **1926.1417(aa)(1)(ii)** The maximum counterweight or ballast specified by the manufacturer for the equipment must not be exceeded. **1926.1417(aa)(2)** Counterweight/ballast requirements for tower cranes are specified in § 1926.1435(b)(8).	No	Policy provides information about lifting and crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including operational aids.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1926.1418 - Authority to stop operation.	Whenever there is a concern as to safety, the operator must have the authority to stop and refuse to handle loads until a qualified person has determined that safety has been assured.	Partial	Policy provides information about crane use and the authority to stop work, however policy is too brief/high-level and is silent on many individual provisions of the regulation,	X				
	1926.1419 - Signals--general requirements.	**1926.1419(a)** A signal person must be provided in each of the following situations: **1926.1419(a)(1)** The point of operation, meaning the load travel or the area near or at load placement, is not in full view of the operator. **1926.1419(a)(2)** When the equipment is traveling, the view in the direction of travel is obstructed. **1926.1419(a)(3)** Due to site specific safety concerns, either the operator or the person handling the load determines that it is necessary. **1926.1419(b)** *Types of signals* . Signals to operators must be by hand, voice, audible, or new signals. **1926.1419(c)** *Hand signals* . **1926.1419(c)(1)** When using hand signals, the Standard Method must be used (*see* Appendix A of this subpart). *Exception:* Where use of the Standard Method for hand signals is infeasible, or where an operation or use of an attachment is not covered in the Standard Method, non-standard hand signals may be used in accordance with paragraph (c)(2) of this section. **1926.1419(c)(2)** *Non-standard hand signals* . When using non-standard hand signals, the signal person, operator, and lift director (where there is one) must contact each other prior to the operation and agree on the non-standard hand signals that will be used. **1926.1419(d)** *New signals* . Signals other than hand, voice, or audible signals may be used where the employer demonstrates that: **1926.1419(d)(1)** The new signals provide at least equally effective communication as voice, audible, or Standard Method hand signals, or **1926.1419(d)(2)** The new signals comply with a national consensus standard that provides at least equally effective communication as voice, audible, or Standard Method hand signals. **1926.1419(e)** *Suitability* . The signals used (hand, voice, audible, or new), and means of transmitting the signals to the operator (such as direct line of sight, video, radio, *etc.*), must be appropriate for the site conditions. **1926.1419(f)** During operations requiring signals, the ability to transmit signals between the operator and signal person must be maintained. If that ability is interrupted at any time, the operator must safely stop operations requiring signals until it is reestablished and a proper signal is given and understood. **1926.1419(g)** If the operator becomes aware of a safety problem and needs to communicate with the signal person, the operator must safely stop operations. Operations must not resume until the operator and signal person agree that the problem has been resolved. **1926.1419(h)** Only one person may give signals to a crane/derrick at a time, except in circumstances covered by paragraph (j) of this section. **1926.1419(j)** Anyone who becomes aware of a safety problem must alert the operator or signal person by giving the stop or emergency stop signal. (**Note:** § 1926.1417(y) requires the operator to obey a stop or emergency stop signal). **1926.1419(k)** All directions given to the operator by the signal person must be given from the operator's direction perspective. **1926.1419(m)** *Communication with multiple cranes/derricks* . Where a signal person(s) is in communication with more than one crane/derrick, a system must be used for identifying the crane/derrick each signal is for, as follows: **1926.1419(m)(1)** for each signal, prior to giving the function/direction, the signal person must identify the crane/derrick the signal is for, or **1926.1419(m)(2)** must use an equally effective method of identifying which crane/derrick the signal is for.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific signals.	X				
	1926.1420 - Signals--radio, telephone or other electronic transmission of signals.	**1926.1420(a)** The device(s) used to transmit signals must be tested on site before beginning operations to ensure that the signal transmission is effective, clear, and reliable. **1926.1420(b)** Signal transmission must be through a dedicated channel, except: **1926.1420(b)(1)** Multiple cranes/derricks and one or more signal persons may share a dedicated channel for the purpose of coordinating operations. **1926.1420(b)(2)** Where a crane is being operated on or adjacent to railroad tracks, and the actions of the crane operator need to be coordinated with the movement of other equipment or trains on the same or adjacent tracks. **1926.1420(c)** The operator's reception of signals must be by a hands-free system.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific signals.	X				
	1926.1421 - Signals--voice signals--additional requirements.	**1926.1421(a)** Prior to beginning operations, the operator, signal person and lift director (if there is one), must contact each other and agree on the voice signals that will be used. Once the voice signals are agreed upon, these workers need not meet again to discuss voice signals unless another worker is added or substituted, there is confusion about the voice signals, or a voice signal is to be changed. **1926.1421(b)** Each voice signal must contain the following three elements, given in the following order: function (such as hoist, boom, *etc.*), direction; distance and/or speed; function, stop command. **1926.1421(c)** The operator, signal person and lift director (if there is one), must be able to effectively communicate in the language used.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific signals.	X				
	1926.1422 - Signals--hand signal chart.	Hand signal charts must be either posted on the equipment or conspicuously posted in the vicinity of the hoisting operations.	No	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific signals.	X				
	1926.1423 - Fall protection.	**1926.1423(a)** *Application* . **1926.1423(a)(1)** Paragraphs (b), (c)(3), (e) and (f) of this section apply to all equipment covered by this subpart except tower cranes. **1926.1423(a)(2)** Paragraphs (c)(1), (c)(2), (d), (g), (j) and (k) of this section apply to all equipment covered by this subpart. **1926.1423(a)(3)** Paragraphs (c)(4) and (h) of this section apply only to tower cranes. **1926.1423(b)** *Boom walkways* . **1926.1423(b)(1)** Equipment manufactured after November 8, 2011 with lattice booms must be equipped with walkways on the boom(s) if the vertical profile of the boom (from cord centerline to cord centerline) is 6 or more feet. **1926.1423(b)(2)** *Boom walkway criteria* . **1926.1423(b)(2)(i)** The walkways must be at least 12 inches wide. **1926.1423(b)(2)(ii)** Guardrails, railings and other permanent fall protection attachments along walkways are: **1926.1423(b)(2)(ii)(A)** Not required. **1926.1423(b)(2)(ii)(B)** Prohibited on booms supported by pendant ropes or bars if the guardrails/railings/attachments could be snagged by the ropes or bars. **1926.1423(b)(2)(ii)(C)** Prohibited if of the removable type (designed to be installed and removed each time the boom is assembled/disassembled). **1926.1423(b)(2)(ii)(D)** Where not prohibited, guardrails or railings may be of any height up to, but not more than, 45 inches. **1926.1423(c)** *Steps, handholds, ladders, grabrails, guardrails and railings* . **1926.1423(c)(1)** Section 1926.502(b) does not apply to equipment covered by this subpart. **1926.1423(c)(2)** The employer must maintain in good condition originally-equipped steps, handholds, ladders and guardrails/railings/attachments that meet the following criteria: **1926.1423(c)(3)(i)** Steps, handholds, ladders and guardrails/railings/grabrails must meet the criteria of SAE J185 (May 2003) (incorporated by reference, *see* § 1926.6) or ISO 11660-2:1994(E) (incorporated by reference, *see* § 1926.6) except where infeasible. **1926.1423(c)(3)** Equipment manufactured after November 8, 2011 must be equipped so as to provide safe access and egress between the ground and the operator work station(s), including the forward and rear positions, by the provision of devices such as steps, handholds, ladders, and guardrails/railings/grabrails. These devices must meet the following criteria: **1926.1423(c)(3)(i)** Steps, handholds, ladders and guardrails/railings/grabrails must meet the criteria of SAE J185 (May 2003) (incorporated by reference, *see* § 1926.6) or ISO 11660-2:1994(E) (incorporated by reference, *see* § 1926.6) except where infeasible. **1926.1423(c)(3)(ii)** Walking/stepping surfaces, except for crawler treads, must have slip-resistant features/properties (such as diamond plate metal, strategically placed grip tape, expanded metal, or slip-resistant paint). **1926.1423(c)(4)** Tower cranes manufactured after November 8, 2011 must be equipped so as to provide safe access and egress between the ground and the cab, machinery platforms, and tower (mast), by the provision of devices such as steps, handholds, ladders, and guardrails/railings/grabrails. These devices must meet the following criteria: **1926.1423(c)(4)(i)** Steps, handholds, ladders, and guardrails/railings/grabrails must meet the criteria of ISO 11660-1:2008(E) (incorporated by reference, *see* § 1926.6) and ISO 11660-3:2008(E) (incorporated by reference, *see* § 1926.6) or SAE J185 (May 2003) (incorporated by reference, *see* § 1926.6) except where infeasible. **1926.1423(c)(4)(ii)** Walking/stepping surfaces must have slip-resistant features/properties (such as diamond plate metal, strategically placed grip tape, expanded metal, or slip-resistant paint). **1926.1423(d)** *Personal fall arrest and fall restraint systems* . Personal fall arrest system components must be used in personal fall arrest and fall restraint systems and must conform to the criteria in § 1926.502(d) except that § 1926.502(d)(15) does not apply to components used in personal fall arrest and fall restraint systems. Either body belts or body harnesses must be used in personal fall arrest and fall restraint systems. **1926.1423(e)** For non-assembly/disassembly work, the employer must provide and ensure the use of fall protection equipment for employees who are on a walking/working surface with an unprotected side or edge more than 6 feet above a lower level as follows: **1926.1423(e)(1)** When moving point-to-point: **1926.1423(e)(1)(i)** On non-lattice booms (whether horizontal or not horizontal). **1926.1423(e)(1)(ii)** On lattice booms that are not horizontal. **1926.1423(e)(1)(iii)** On horizontal lattice booms where the fall distance is 15 feet or more. **1926.1423(e)(2)** While at a work station on any part of the equipment (including the boom, of any type), except when the employee is at or near draw-works (when the equipment is running), in the cab, or on the deck. **1926.1423(f)** For assembly/disassembly work, the employer must provide and ensure the use of fall protection equipment for employees who are on a walking/working surface with an unprotected side or edge more than 15 feet above a lower level, except when the employee is at or near draw-works (when the equipment is running), in the cab, or on the deck. **1926.1423(g)** *Anchorage criteria* . **1926.1423(g)(1)** Sections 1926.502(d)(15) and 1926.502(e)(2) apply to equipment covered by this subpart only to the extent delineated in paragraph (g)(2) of this section. **1926.1423(g)(2)** *Anchorages for personal fall arrest and positioning device systems* . **1926.1423(g)(2)(i)** Personal fall arrest systems must be anchored to any apparently substantial part of the equipment unless a competent person, from a visual inspection, without an engineering analysis, would conclude that the criteria in § 1926.502(d)(15) would not be met. **1926.1423(g)(2)(ii)** Positioning device systems must be anchored to any apparently substantial part of the equipment unless a competent person, from a visual inspection, without an engineering analysis, would conclude that the criteria in § 1926.502(e)(2) would not be met. **1926.1423(g)(2)(iii)** Attachable anchor devices (portable anchor devices that are attached to the equipment) must meet the anchorage criteria in § 1926.502(d)(15) for personal fall arrest systems and § 1926.502(e)(2) for positioning device systems. **1926.1423(g)(3)** *Anchorages for fall restraint systems* . Fall restraint systems must be anchored to any part of the equipment that is capable of withstanding twice the maximum load that an employee may impose on it during reasonably anticipated conditions of use. **1926.1423(h)** *Tower cranes* . **1926.1423(h)(1)** For work other than erecting, climbing, and dismantling, the employer must provide and ensure the use of fall protection equipment for employees who are on a walking/working surface with an unprotected side or edge more than 6 feet above a lower level, except when the employee is at or near draw-works (when the equipment is running), in the cab, or on the deck. **1926.1423(h)(2)** For erecting, climbing, and dismantling work, the employer must provide and ensure the use of fall protection equipment for employees who are on a walking/working surface with an unprotected side or edge more than 15 feet above a lower level. **1926.1423(j)** *Anchoring to the load line* . A personal fall arrest system is permitted to be anchored to the crane/derrick's hook (or other part of the load line) where all of the following requirements are met: **1926.1423(j)(1)** A qualified person has determined that the set-up and rated capacity of the crane/derrick (including the hook, load line and rigging) meets or exceeds the requirements in § 1926.502(d)(15). **1926.1423(j)(2)** The equipment operator must be at the work site and informed that the equipment is being used for this purpose. **1926.1423(j)(3)** No load is suspended from the load line when the personal fall arrest system is anchored to the crane/derrick's hook (or other part of the load line).	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including requirements for fall protection.	X				
	1926.1424 - Work area control.	**1926.1424(a)** *Swing radius hazards* . **1926.1424(a)(1)** The requirements in paragraph (a)(2) of this section apply where there are accessible areas in which the equipment's rotating superstructure (whether permanently or temporarily mounted) poses a reasonably foreseeable risk of: **1926.1424(a)(1)(i)** Striking and injuring an employee; or **1926.1424(a)(1)(ii)** Pinching/crushing an employee against another part of the equipment or another object. **1926.1424(a)(2)** To prevent employees from entering these hazard areas, the employer must: **1926.1424(a)(2)(i)** Train each employee assigned to work on or near the equipment ("authorized personnel") in how to recognize struck-by and pinch/crush hazard areas posed by the rotating superstructure. **1926.1424(a)(2)(ii)** Erect and maintain control lines, warning lines, railings or similar barriers to mark the boundaries of the hazard areas. *Exception:* When the employer can demonstrate that it is neither feasible to erect such barriers on the ground nor on the equipment, the hazard areas must be clearly marked by a combination of warning signs (such as "Danger--Swing/Crush Zone") and high visibility markings on the equipment that identify the hazard areas. In addition, the employer must train each employee to understand what these markings signify. **1926.1424(a)(3)** *Protecting employees in the hazard area* . **1926.1424(a)(3)(i)** Before an employee goes to a location in the hazard area that is out of view of the operator, the employee (or someone instructed by the employee) must ensure that the operator is informed that he/she is going to that location. **1926.1424(a)(3)(ii)** Where the operator knows that an employee went to a location covered by paragraph (a)(1) of this section, the operator must not rotate the superstructure until the operator is informed in accordance with a pre-arranged system of communication that the employee is in a safe position. **1926.1424(b)** Where any part of a crane/derrick is within the working radius of another crane/derrick, the controlling entity must institute a system to coordinate operations. If there is no controlling entity, the employer (if there is only one employer operating the multiple pieces of equipment), or employers, must institute such a system.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific work area controls.	X				
	1926.1425 - Keeping clear of the load.	**1926.1425(a)** Where available, hoisting routes that minimize the exposure of employees to hoisted loads must be used, to the extent consistent with public safety. **1926.1425(b)** While the operator is not moving a suspended load, no employee must be within the fall zone, except for employees: **1926.1425(b)(1)** Engaged in hooking, unhooking or guiding a load; **1926.1425(b)(2)** Engaged in the initial attachment of the load to a component or structure; or **1926.1425(b)(3)** Operating a concrete hopper or concrete bucket. **1926.1425(c)** When employees are engaged in hooking, unhooking, or guiding the load, or in the initial connection of a load to a component or structure and are within the fall zone, all of the following criteria must be met: **1926.1425(c)(1)** The materials being hoisted must be rigged to prevent unintentional displacement. **1926.1425(c)(2)** Hooks with self-closing latches or their equivalent must be used. *Exception:* "J" hooks are permitted to be used for setting wooden trusses. **1926.1425(c)(3)** The materials must be rigged by a qualified rigger. **1926.1425(d)** *Receiving a load* . Only employees needed to receive a load are permitted to be within the fall zone when a load is being landed. **1926.1425(e)** During a tilt-up or tilt-down operation: **1926.1425(e)(1)** No employee must be directly under the load. **1926.1425(e)(2)** Only employees essential to the operation are permitted in the fall zone (but not directly under the load). An employee is essential to the operation if the employee is conducting one of the following operations and the employer can demonstrate it is infeasible for the employee to perform that operation from outside the fall zone: (1) Physically guide the load; (2) closely monitor and give instructions regarding the load's movement; or (3) either detach it from or initially attach it to another component or structure (such as, but not limited to, making an initial connection or installing bracing). **Note:** Boom free fall is prohibited when an employee is in the fall zone of the boom or load, and load line free fall is prohibited when an employee is directly under the load; *see* § 1926.1426.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including work in fall zones.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1926.1426 - Free fall and controlled load lowering.	**1926.1426(a)** *Boom free fall prohibitions* . **1926.1426(a)(1)** The use of equipment in which the boom is designed to free fall (live boom) is prohibited in each of the following circumstances: **1926.1426(a)(1)(i)** An employee is in the fall zone of the boom or load. **1926.1426(a)(1)(ii)** An employee is being hoisted. **1926.1426(a)(1)(iii)** The load or boom is directly over a power line, or over any part of the area extending the Table A of § 1926.1408 clearance distance to each side of the power line; or any part of the area extending the Table A clearance distance to each side of the power line is within the radius of vertical travel of the boom or the load. **1926.1426(a)(1)(iv)** The load is over a shaft, except where there are no employees in the shaft. **1926.1426(a)(1)(v)** The load is over a cofferdam, except where there are no employees in the fall zone of the boom or the load. **1926.1426(a)(1)(vi)** Lifting operations are taking place in a refinery or tank farm. **1926.1426(a)(2)** The use of equipment in which the boom is designed to free fall (live boom) is permitted only where none of the circumstances listed in paragraph (a)(1) of this section are present and: **1926.1426(a)(2)(i)** The equipment was manufactured prior to October 31, 1984; or **1926.1426(a)(2)(ii)** The equipment is a floating crane/derrick or a land crane/derrick on a vessel/flotation device. **1926.1426(b)** *Preventing boom free fall* . Where the use of equipment with a boom that is designed to free fall (live boom) is prohibited, the boom hoist must have a secondary mechanism or device designed to prevent the boom from falling in the event the primary system used to hold or regulate the boom hoist fails, as follows: **1926.1426(b)(1)** Friction drums must have: **1926.1426(b)(1)(i)** A friction clutch and, in addition, a braking device, to allow for controlled boom lowering. **1926.1426(b)(1)(ii)** A secondary braking or locking device, which is manually or automatically engaged, to back-up the primary brake while the boom is held (such as a secondary friction brake or a ratchet and pawl device). **1926.1426(b)(2)** Hydraulic drums must have an integrally mounted holding device or internal static brake to prevent boom hoist movement in the event of hydraulic failure. **1926.1426(b)(3)** Neither clutches nor hydraulic motors must be considered brake or locking devices for purposes of this subpart. **1926.1426(b)(4)** Hydraulic boom cylinders must have an integrally mounted holding device. **1926.1426(c)** *Preventing uncontrolled retraction* . Hydraulic telescoping booms must have an integrally mounted holding device to prevent the boom from retracting in the event of hydraulic failure. **1926.1426(d)** *Load line free fall* . In each of the following circumstances, controlled load lowering is required and free fall of the load line hoist is prohibited: **1926.1426(d)(1)** An employee is directly under the load. **1926.1426(d)(2)** An employee is being hoisted. **1926.1426(d)(3)** The load is directly over a power line, or over any part of the area extending the Table A of § 1926.1408 clearance distance to each side of the power line; or any part of the area extending the Table A of § 1926.1408 clearance distance to each side of the power line is within the radius of vertical travel of the load. **1926.1426(d)(4)** The load is over a shaft. **1926.1426(d)(5)** The load is over a cofferdam, except where there are no employees in the fall zone of the load.	No	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including work in fall zones.	X				
	1926.1427 - Operator qualification and certification.	**1926.1427(a)** The employer must ensure that, prior to operating any equipment covered under subpart CC, the person is operating the equipment during a training period in accordance with paragraph (f) of this section, or the operator is qualified or certified to operate the equipment in accordance with the following: **1926.1427(a)(1)** When a non-military government entity issues operator licenses for equipment covered under subpart CC, and that government licensing program meets the requirements of paragraphs (e)(2) and (j) of this section, the equipment operator must either be: **1926.1427(a)(1)(i)** Licensed by that government entity for operation of equipment within that entity's jurisdiction; or **1926.1427(a)(1)(ii)** qualified in compliance with paragraph (d) of this section. **1926.1427(a)(2)** Where paragraph (a)(1) of this section is not applicable, the certification or qualification must comply with one of the options in paragraphs (b) through (d) of this section. **1926.1427(a)(3)** *Exceptions:* Operator qualification or certification under this section is not required for operators of derricks (*see* § 1926.1436), sideboom cranes (*see* § 1926.1440), or equipment with a maximum manufacturer-rated hoisting/lifting capacity of 2,000 pounds or less (see § 1926.1441). **1926.1427(a)(4)** Whenever operator qualification or certification is required under § 1926.1427, the employer must provide the qualification or certification at no cost to operators who are employed by the employer on November 8, 2010. **1926.1427(b)** *Option (1): Certification by an accredited crane operator testing organization* . **1926.1427(b)(1)** For a testing organization to be considered accredited to certify operators under this subpart, it must: **1926.1427(b)(1)(i)** Be accredited by a nationally recognized accrediting agency based on that agency's determination that industry recognized criteria for written testing materials, practical examinations, test administration, grading, facilities/equipment and personnel have been met. **1926.1427(b)(1)(ii)** Administer written and practical tests that: **1926.1427(b)(1)(ii)(A)** Assess the operator applicant regarding, at a minimum, the knowledge and skills listed in paragraphs (j)(1) and (2) of this section. **1926.1427(b)(1)(ii)(B)** Provide different levels of certification based on equipment capacity and type. **1926.1427(b)(1)(iii)** Have procedures for operators to re-apply and be re-tested in the event an operator applicant fails a test or is decertified. **1926.1427(b)(1)(iv)** Have testing procedures for re-certification designed to ensure that the operator continues to meet the technical knowledge and skills requirements in paragraphs (j)(1) and (2) of this section. **1926.1427(b)(1)(v)** Have its accreditation reviewed by the nationally recognized accrediting agency at least every three years. **1926.1427(b)(2)** An operator will be deemed qualified to operate a particular piece of equipment if the operator is certified under paragraph (b) of this section for that type and capacity of equipment or for higher-capacity equipment of that type. If no accredited testing agency offers certification examinations for a particular type and/or capacity of equipment, an operator will be deemed qualified to operate that equipment if the operator has been certified for the type/capacity that is most similar to that equipment and for which a certification examination is available. The operator's certificate must state the type/capacity of equipment for which the operator is certified. **1926.1427(b)(3)** A certification issued under this option is portable and meets the requirements of paragraph (a)(2) of this section. **1926.1427(b)(4)** A certification issued under this paragraph is valid for 5 years. **1926.1427(c)** *Option (2): Qualification by an audited employer program* . The employer's qualification of its employee must meet the following requirements: **1926.1427(c)(1)** The written and practical tests must be either: **1926.1427(c)(1)(i)** Developed by an accredited crane operator testing organization (*see* paragraph (b) of this section); or **1926.1427(c)(1)(ii)** Approved by an auditor in accordance with the following requirements: **1926.1427(c)(1)(ii)(A)** The auditor is certified to evaluate such tests by an accredited crane operator testing organization (*see* paragraph (b) of this section). **1926.1427(c)(1)(ii)(B)** The auditor is not an employee of the employer. **1926.1427(c)(1)(ii)(C)** The approval must be based on the auditor's determination that the written and practical tests meet nationally recognized test development criteria and are valid and reliable in assessing the operator applicants regarding, at a minimum, the knowledge and skills listed in paragraphs (j)(1) and (2) of this section. **1926.1427(c)(1)(ii)(D)** The audit must be conducted in accordance with nationally recognized auditing standards. **1926.1427(c)(2)** *Administration of tests* . **1926.1427(c)(2)(i)** The written and practical tests must be administered under circumstances approved by the auditor as meeting nationally recognized test administration standards. **1926.1427(c)(2)(ii)** The auditor must be certified to evaluate the administration of the written and practical tests by an accredited crane operator testing organization (*see* paragraph (b) of this section). **1926.1427(c)(2)(iii)** The auditor must not be an employee of the employer. **1926.1427(c)(2)(iv)** The audit must be conducted in accordance with nationally recognized auditing standards. **1926.1427(c)(3)** The employer program must be audited within 3 months of the beginning of the program and at least every 3 years thereafter. **1926.1427(c)(4)** The employer program must have testing procedures for re-qualification designed to ensure that the operator continues to meet the technical knowledge and skills requirements in paragraphs (j)(1) and (2) of this section. The re-qualification procedures must be audited in accordance with paragraphs (c)(1) and (2) of this section. **1926.1427(c)(5)** *Deficiencies* . If the auditor determines that there is a significant deficiency ("deficiency") in the program, the employer must ensure that: **1926.1427(c)(5)(i)** No operator is qualified until the auditor confirms that the deficiency has been corrected. **1926.1427(c)(5)(ii)** The program is audited again within 180 days of the confirmation that the deficiency was corrected. **1926.1427(c)(5)(iii)** The auditor files a documented report of the deficiency to the appropriate Regional Office of the Occupational Safety and Health Administration within 15 days of the auditor's determination that there is a deficiency.**1926.1427(c)(5)(iv)** Records of the audits of the employer's program are maintained by the auditor for three years and are made available by the auditor to the Secretary of Labor or the Secretary's designated representative upon request. **1926.1427(c)(6)** A qualification under this paragraph is: **1926.1427(c)(6)(i)** Not portable. Such a qualification meets the requirements of paragraph (a) of this section only where the operator is employed by (and operating the equipment for) the employer that issued the qualification. **1926.1427(c)(6)(ii)** Valid for 5 years. **1926.1427(d)** *Option (3): Qualification by the U.S. military* . **1926.1427(d)(1)** For purposes of this section, an operator who is an employee of the U.S. military is considered qualified if he/she has a current operator qualification issued by the U.S. military for operation of the equipment. An employee of the U.S. military is a Federal employee of the Department of Defense or Armed Forces and does not include employees of private contractors. **1926.1427(d)(2)** A qualification under this paragraph is: **1926.1427(d)(2)(i)** Not portable. Such a qualification meets the requirements of paragraph (a) of this section only where the operator is employed by (and operating the equipment for) the employer that issued the qualification. **1926.1427(d)(2)(ii)** Valid for the period of time stipulated by the issuing entity. **1926.1427(e)** *Option (4): Licensing by a government entity* . **1926.1427(e)(1)** For purposes of this section, a government licensing department/office that issues operator licenses for operating equipment covered by this standard is considered a government accredited crane operator testing organization if the criteria in paragraph (e)(2) of this section are met. **1926.1427(e)(2)** *Licensing criteria* . **1926.1427(e)(2)(i)** The requirements for obtaining the license include an assessment, by written and practical tests, of the operator applicant regarding, at a minimum, the knowledge and skills listed in paragraphs (j)(1) and (2) of this section. **1926.1427(e)(2)(ii)** The testing meets industry recognized criteria for written testing materials, practical examinations, test administration, grading, facilities/equipment and personnel. **1926.1427(e)(2)(iii)** The government authority that oversees the licensing department/office, has determined that the requirements in paragraphs (e)(2)(i) and (ii) of this section have been met. **1926.1427(e)(2)(iv)** The licensing department/office has testing procedures for re-licensing designed to ensure that the operator continues to meet the technical knowledge and skills requirements in paragraphs (j)(1) and (2) of this section. **1926.1427(e)(3)** A license issued by a government accredited crane operator testing organization that meets the requirements of this option: **1926.1427(e)(3)(i)** Meets the operator qualification requirements of this section for operation of equipment only within the jurisdiction of the government entity. **1926.1427(e)(3)(ii)** Is valid for the period of time stipulated by the licensing department/office, but no longer than 5 years.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific operator qualification and certification.	X		X		
	1926.1428 - Signal person qualifications.	**1926.1428(a)** The employer of the signal person must ensure that each signal person meets the Qualification Requirements (paragraph (c) of this section) prior to giving any signals. This requirement must be met by using either Option (1) or Option (2) of this section. **1926.1428(a)(1)** *Option (1)—Third party qualified evaluator* . The signal person has documentation from a third party qualified evaluator (see Qualified Evaluator (third party), § 1926.1401 for definition) showing that the signal person meets the Qualification Requirements (*see* paragraph (c) of this section). **1926.1428(a)(2)** *Option (2)—Employer's qualified evaluator* . The employer's qualified (see Qualified Evaluator (not a third party), § 1926.1401 for definition) evaluator assesses the individual and determines that the individual meets the Qualification Requirements (*see* paragraph (c) of this section) and provides documentation of that determination. An assessment by an employer's qualified evaluator under this option is not portable—other employers are not permitted to use it to meet the requirements of this section. **1926.1428(a)(3)** The employer must make the documentation for whichever option is used available at the site while the signal person is employed by the employer. The documentation must specify each type of signaling (*e.g.* hand signals, radio signals, *etc.*) for which the signal person meets the requirements of paragraph (c) of this section. **1926.1428(b)** If subsequent actions by the signal person indicate that the individual does not meet the Qualification Requirements (*see* paragraph (c) of this section), the employer must not allow the individual to continue working as a signal person until re-training is provided and a re-assessment is made in accordance with paragraph (a) of this section that confirms that the individual meets the Qualification Requirements.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific signal person qualifications.	X		X		
	1926.1430 - Training.	**1926.1430(g)** *Training administration* . **1926.1430(g)(1)** The employer must evaluate each employee required to be trained under this subpart to confirm that the employee understands the information provided in the training. **1926.1430(g)(2)** The employer must provide refresher training in relevant topics for each employee when, based on the conduct of the employee or an evaluation of the employee's knowledge, there is an indication that retraining is necessary. **1926.1430(g)(3)** Whenever training is required under subpart CC, the employer must provide the training at no cost to the employee.	Partial	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific training requirements.	X	X	X		

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
1926.1431 - Hoisting personnel.		The requirements of this section are supplemental to the other requirements in this subpart and apply when one or more employees are hoisted. **1926.1431(a)** The use of equipment to hoist employees is prohibited except where the employer demonstrates that the erection, use, and dismantling of conventional means of reaching the work area, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform, or scaffold, would be more hazardous, or is not possible because of the project's structural design or worksite conditions. This paragraph does not apply to work covered by subpart R (Steel Erection) of this part. **1926.1431(b)** *Use of personnel platform* . **1926.1431(b)(1)** When using equipment to hoist employees, the employees must be in a personnel platform that meets the requirements of paragraph (e) of this section. **1926.1431(b)(2)** *Exceptions:* A personnel platform is not required for hoisting employees: **1926.1431(b)(2)(i)** Into and out of drill shafts that are up to and including 8 feet in diameter (*see* paragraph (o) of this section for requirements for hoisting these employees). **1926.1431(b)(2)(ii)** In pile driving operations (*see* paragraph (p) of this section for requirements for hoisting these employees). **1926.1431(b)(2)(iii)** Solely for transfer to or from a marine worksite in a marine-hoisted personnel transfer device (*see* paragraph (r) of this section for requirements for hoisting these employees). **1926.1431(b)(2)(iv)** In storage-tank (steel or concrete), shaft and chimney operations (*see* paragraph (s) of this section for requirements for hoisting these employees). **1926.1431(c)** *Equipment set-up* . **1926.1431(c)(1)** The equipment must be uniformly level, within one percent of level grade, and located on footing that a qualified person has determined to be sufficiently firm and stable. **1926.1431(c)(2)** Equipment with outriggers or stabilizers must have them all extended and locked. The amount of extension must be the same for all outriggers and stabilizers and in accordance with manufacturer procedures and load charts. **1926.1431(d)** *Equipment criteria* . **1926.1431(d)(1)** *Capacity: Use of suspended personnel platforms* . The total load (with the platform loaded, including the hook, load line and rigging) must not exceed 50 percent of the rated capacity for the radius and configuration of the equipment, except during proof testing. **1926.1431(d)(2)** *Capacity: Use of boom-attached personnel platforms* . The total weight of the loaded personnel platform must not exceed 50 percent of the rated capacity for the radius and configuration of the equipment (except during proof testing). **1926.1431(d)(3)** *Capacity: Hoisting personnel without a personnel platform* . When hoisting personnel without a personnel platform pursuant to paragraph (b)(2) of this section, the total load (including the hook, load line, rigging and any other equipment that imposes a load) must not exceed 50 percent of the rated capacity for the radius and configuration of the equipment, except during proof testing. **1926.1431(d)(4)** When the occupied personnel platform is in a stationary working position, the load and boom hoist brakes, swing brakes, and operator actuated secondary braking and locking features (such as pawls or dogs) or automatic secondary brakes must be engaged. **1926.1431(d)(5)** *Devices* . **1926.1431(d)(5)(i)** Equipment (except for derricks and articulating cranes) with a variable angle boom must be equipped with all of the following: **1926.1431(d)(5)(i)(A)** A boom angle indicator, readily visible to the operator, and **1926.1431(d)(5)(i)(B)** A boom hoist limiting device. **1926.1431(d)(5)(ii)** Articulating cranes must be equipped with a properly functioning automatic overload protection device. **1926.1431(d)(5)(iii)** Equipment with a luffing jib must be equipped with: **1926.1431(d)(5)(iii)(A)** A jib angle indicator, readily visible to the operator, and. **1926.1431(d)(5)(iii)(B)** A jib hoist limiting device. **1926.1431(d)(5)(iv)** Equipment with telescoping booms must be equipped with a device to indicate the boom's extended length clearly to the operator, or must have measuring marks on the boom. **1926.1431(d)(5)(v)** *Anti two-block* . A device which automatically prevents damage and load failure from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component) must be used. The device(s) must prevent such damage/failure at all points where two-blocking could occur. *Exception:* This device is not required when hoisting personnel in pile driving operations. Instead, paragraph (p)(2) of this section specifies how to prevent two-blocking during such operations. **1926.1431(d)(5)(vi)** *Controlled load lowering* . The load line hoist drum must have a system, other than the load line hoist brake, which regulates the lowering rate of speed of the hoist mechanism. This system or device must be used when hoisting personnel. **Note:** Free fall of the load line hoist is prohibited (*see* § 1926.1426(d); the use of equipment in which the boom hoist mechanism can free fall is also prohibited (*see* § 1926.1426(a)(1). **1926.1431(d)(5)(vii)** *Proper operation required* . Personnel hoisting operations must not begin unless the devices listed in this section are in proper working order. If a device stops working properly during such operations, the operator must safely stop operations. Personnel hoisting operations must not resume until the device is again working properly. Alternative measures are not permitted. (*See* § 1926.1417 for tag-out and related requirements.) **1926.1431(d)(6)** Direct attachment of a personnel platform to a luffing jib is prohibited. **1926.1431(e)** *Personnel platform criteria* . **1926.1431(e)(1)** A qualified person familiar with structural design must design the personnel platform and attachment/suspension system used for hoisting personnel. **1926.1431(e)(2)** The system used to connect the personnel platform to the equipment must allow the platform to remain within 10 degrees of level, regardless of boom angle. **1926.1431(e)(3)** The suspension system must be designed to minimize tipping of the platform due to movement of employees occupying the platform. **1926.1431(e)(4)** The personnel platform itself (excluding the guardrail system and personal fall arrest system anchorages), must be capable of supporting, without failure, its own weight and at least five times the maximum intended load. **1926.1431(e)(5)** All welding of the personnel platform and its components must be performed by a certified welder familiar with the weld grades, types and material specified in the platform design. **1926.1431(e)(6)** The personnel platform must be equipped with a guardrail system which meets the requirements of subpart M of this part, and must be enclosed at least from the toeboard to mid-rail with either solid construction material or expanded metal having openings no greater than ½ inch (1.27 cm). Points to which personal fall arrest systems are attached must meet the anchorage requirements in subpart M of this part. **1926.1431(e)(7)** A grab rail must be installed inside the entire perimeter of the personnel platform except for access gates/doors. **1926.1431(e)(8)** *Access gates/doors* . If installed, access gates/doors of all types (including swinging, sliding, folding, or other types) must: **1926.1431(e)(8)(i)** Not swing outward. If due to the size of the personnel platform, such as a 1-person platform, it is infeasible for the door to swing inward and allow safe entry for the platform occupant, then the access gate/door may swing outward. **1926.1431(e)(8)(ii)** Be equipped with a device that prevents accidental opening. **1926.1431(e)(9)** Headroom must be sufficient to allow employees to stand upright in the platform. **1926.1431(e)(10)** In addition to the use of hard hats, employees must be protected by overhead protection on the personnel platform when employees are exposed to falling objects. The platform overhead protection must not obscure the view of the operator or platform occupants (such as wire mesh that has up to ½ inch openings), unless full protection is necessary. **1926.1431(e)(11)** All edges exposed to employee contact must be smooth enough to prevent injury. **1926.1431(e)(12)** The weight of the platform and its rated capacity must be conspicuously posted on the platform with a plate or other permanent marking. **1926.1431(f)** *Personnel platform loading* . **1926.1431(f)(1)** The personnel platform must not be loaded in excess of its rated capacity. **1926.1431(f)(2)** *Use* . **1926.1431(f)(2)(i)** Personnel platforms must be used only for employees, their tools, and the materials necessary to do their work. Platforms must not be used to hoist materials or tools when not hoisting personnel. **1926.1431(f)(2)(ii)** *Exception:* Materials and tools to be used during the lift, if secured and distributed in accordance with paragraph (f)(3) of this section may be in the platform for trial lifts. **1926.1431(f)(3)** Materials and tools must be: **1926.1431(f)(3)(i)** Secured to prevent displacement. **1926.1431(f)(3)(ii)** Evenly distributed within the confines of the platform while it is suspended. **1926.1431(f)(4)** The number of employees occupying the personnel platform must not exceed the maximum number the platform was designed to hold or the number required to perform the work, whichever is less. **1926.1431(g)** *Attachment and rigging* . **1926.1431(g)(1)** *Hooks and other detachable devices* . **1926.1431(g)(1)(i)** Hooks used in the connection between the hoist line and the personnel platform (including hooks on overhaul ball assemblies, lower load blocks, bridle legs, or other attachment assemblies or components) must be: **1926.1431(g)(1)(i)(A)** Of a type that can be closed and locked, eliminating the throat opening. **1926.1431(g)(1)(i)(B)** Closed and locked when attached. **1926.1431(g)(1)(ii)** Shackles used in place of hooks must be of the alloy anchor type, with either: **1926.1431(g)(1)(ii)(A)** A bolt, nut and retaining pin, in place; or **1926.1431(g)(1)(ii)(B)** Of the screw type, with the screw pin secured from accidental removal. **1926.1431(g)(1)(iii)** Where other detachable devices are used, they must be of the type that can be closed and locked to the same extent as the devices addressed in paragraphs (g)(1)(i) and (ii) of this section. Such devices must be closed and locked when attached. **1926.1431(g)(2)** *Rope bridle* . When a rope bridle is used to suspend the personnel platform, each bridle leg must be connected to a master link or shackle (*see* paragraph (g)(1) of this section) in a manner that ensures that the load is evenly divided among the bridle legs. **1926.1431(g)(3)** Rigging hardware (including wire rope, shackles, rings, master links, and other rigging hardware) and hooks must be capable of supporting, without failure, at least five times the maximum intended load applied or transmitted to that component. Where rotation resistant rope is used, the slings must be capable of supporting without failure at least ten times the maximum intended load. **1926.1431(g)(4)** Eyes in wire rope slings must be fabricated with thimbles. **1926.1431(g)(5)** Bridles and associated rigging for suspending the personnel platform must be used only for the platform and the necessary employees, their tools and materials necessary to do their work. The bridles and associated rigging must not have been used for any purpose other than hoisting personnel. **1926.1431(h)** *Trial lift and inspection* . **1926.1431(h)(1)** A trial lift with the unoccupied personnel platform loaded at least to the anticipated liftweight must be made from ground level, or any other location where employees will enter the platform, to each location at which the platform is to be hoisted and positioned. Where there is more than one location to be reached from a single set-up position, either individual trial lifts for each location, or a single trial lift, in which the platform is moved sequentially to each location, must be performed; the method selected must be the same as the method that will be used to hoist the personnel. **1926.1431(h)(2)** The trial lift must be performed immediately prior to each shift in which personnel will be hoisted. In addition, the trial lift must be repeated prior to hoisting employees in each of the following circumstances: **1926.1431(h)(2)(i)** The equipment is moved and set up in a new location or returned to a previously used location. **1926.1431(h)(2)(ii)** The lift route is changed, unless the competent person determines that the new route presents no new factors affecting safety. **1926.1431(h)(3)** The competent person must determine that: **1926.1431(h)(3)(i)** Safety devices and operational aids required by this section are activated and functioning properly. Other safety devices and operational aids must meet the requirements of § 1926.1415 and § 1926.1416. **1926.1431(h)(3)(ii)** Nothing interferes with the equipment or the personnel platform in the course of the trial lift. **1926.1431(h)(3)(iii)** The lift will not exceed 50 percent of the equipment's rated capacity at any time during the lift. **1926.1431(h)(3)(iv)** The load radius to be used during the lift has been accurately determined. **1926.1431(h)(4)** Immediately after the trial lift, the competent person must: **1926.1431(h)(4)(i)** Conduct a visual inspection of the equipment, base support or ground, and personnel platform, to determine whether the trial lift has exposed any defect or problem or produced any adverse effect. **1926.1431(h)(4)(ii)** Confirm that, upon the completion of the trial lift process, the test weight has been removed. **1926.1431(h)(5)** Immediately prior to each lift: **1926.1431(h)(5)(i)** The platform must be hoisted a few inches with the personnel and materials/tools on board and inspected by a competent person to ensure that it is secure and properly balanced. **1926.1431(h)(5)(ii)** The following conditions must be determined by a competent person to exist before the lift of personnel proceeds: **1926.1431(h)(5)(ii)(A)** Hoist ropes must be free of deficiencies in accordance with § 1926.1413(a). **1926.1431(h)(5)(ii)(B)** Multiple part lines must not be twisted around each other. **1926.1431(h)(5)(ii)(C)** The primary attachment must be centered over the platform. **1926.1431(h)(5)(ii)(D)** If the load rope is slack, the hoisting system must be inspected to ensure that all ropes are properly seated on drums and in sheaves. **1926.1431(h)(6)** Any condition found during the trial lift and subsequent inspection(s) that fails to meet a requirement of this standard or otherwise creates a safety hazard must be corrected before hoisting personnel. (*See* § 1926.1417 for tag-out and related requirements.) **1926.1431(j)** *Proof testing* . **1926.1431(j)(1)** At each jobsite, prior to hoisting employees on the personnel platform, and after any repair or modification, the platform and rigging must be proof tested to 125 percent of the platform's rated capacity. The proof test may be done concurrently with the trial lift. **1926.1431(j)(2)** The platform must be lowered by controlled load lowering, braked, and held in a suspended position for a minimum of five minutes with the test load evenly distributed on the platform. **1926.1431(j)(3)** After proof testing, a competent person must inspect the platform and rigging to determine if the test has been passed. If any deficiencies are found that pose a safety hazard, the platform and rigging must not be used to hoist personnel unless the deficiencies are corrected, the test is repeated, and a competent person determines that the test has been passed. (*See* § 1926.1417 for tag-out and related requirements.) **1926.1431(j)(4)** Personnel hoisting must not be conducted until the competent person determines that the platform and rigging have successfully passed the proof test. **1926.1431(k)** *Work practices* . **1926.1431(k)(1)** Hoisting of the personnel platform must be performed in a slow, controlled, cautious manner, with no sudden movements of the equipment or the platform. **1926.1431(k)(2)** Platform occupants must: **1926.1431(k)(2)(i)** Keep all parts of the body inside the platform during raising, lowering, and horizontal movement. This provision does not apply to an occupant of the platform when necessary to position the platform or while performing the duties of a signal person. **1926.1431(k)(2)(ii)** Not stand, sit on, or work from the top or intermediate rail or toeboard, or use any other means/device to raise their working height. **1926.1431(k)(2)(iii)** Not pull the platform out of plumb in relation to the hoisting equipment. **1926.1431(k)(3)** Before employees exit or enter a hoisted personnel platform that is not landed, the platform must be secured to the structure where the work is to be performed, unless the employer can demonstrate that securing to the structure would create a greater hazard. **1926.1431(k)(4)** If the platform is tied to the structure, the operator must not move the platform until the operator receives confirmation that it is freely suspended. **1926.1431(k)(5)** Tag lines must be used when necessary to control the platform. **1926.1431(k)(6)** *Platforms without controls* . Where the platform is not equipped with controls, the equipment operator must remain at the equipment controls, on site, and in view of the equipment, at all times while the platform is occupied. 1926.1431(k)(7) Platforms with controls. Where the platform is equipped with controls, all of the following must be met at all times while the platform is occupied: 1926.1431(k)(7)(i) The occupant using the controls in the platform must be a qualified person with respect to their use, including the safe limitations of the equipment and hazards associated with its operation. 1926.1431(k)(7)(ii) The equipment operator must be at a set of equipment controls that include boom and swing functions of the equipment, and must be on site and in view of the equipment. 1926.1431(k)(7)(iii) The platform operating manual must be in the platform or on the equipment. 1926.1431(k)(8) Environmental conditions. 1926.1431(k)(8)(i) Wind. When wind speed (sustained or gusts) exceeds 20 mph at the personnel platform, a qualified person must determine if, in light of the wind conditions, it is not safe to lift personnel. If it is not, the lifting operation must not begin (or, if already in progress, must be terminated). 1926.1431(k)(8)(ii) Other weather and environmental conditions. A qualified person must determine if, in light of indications of dangerous weather conditions, or other impending or existing danger, it is not safe to lift personnel. If it is not, the lifting operation must not begin (or, if already in progress, must be terminated). 1926.1431(k)(9) Employees being hoisted must remain in direct communication with the signal person (where used), or the operator. 1926.1431(k)(10) Fall protection. 1926.1431(k)(10)(i) Except over water, employees occupying the personnel platform must be provided and use a personal fall arrest system. The system must be attached to a structural member within the personnel platform. When working over or near water, the requirements of § 1926.106 apply. 1926.1431(k)(10)(ii) The fall arrest system, including the attachment point (anchorage) used to comply with paragraph (l) of this section, must meet the requirements in § 1926.502. 1926.1431(k)(11) Other load lines. 1926.1431(k)(11)(i) No lifts must be made on any other of the equipment's load lines while personnel are being hoisted, except in pile driving operations. 1926.1431(k)(11)(ii) Factory-produced boom-mounted personnel platforms that incorporate a winch as original equipment. Loads are permitted to be hoisted by such a winch while employees occupy the personnel platform only where the load on the winch line does not exceed 500 pounds and does not exceed the rated capacity of the winch and platform. 1926.1431(k)(12) Traveling--equipment other than derricks. 1926.1431(k)(12)(i) Hoisting of employees while the equipment is traveling is prohibited, except for: 1926.1431(k)(12)(i)(A) Equipment that travels on fixed rails; or 1926.1431(k)(12)(i)(B) Where the employer demonstrates that there is no less hazardous way to perform the work. 1926.1431(k)(12)(i)(C) This exception does not apply to rubber-tired equipment. 1926.1431(k)(12)(ii) Where employees are hoisted while the equipment is traveling, all of the following criteria must be met: 1926.1431(k)(12)(ii)(A) Equipment travel must be restricted to a fixed track or runway. 1926.1431(k)(12)(ii)(B) Where a runway is used, it must be a firm, level surface designed, prepared and designated as a path of travel for the weight and configuration of the equipment being used to lift and travel with the personnel platform. An existing surface may be used as long as it meets these criteria. 1926.1431(k)(12)(ii)(C) Equipment travel must be limited to boom length. 1926.1431(k)(12)(ii)(D) The boom must be parallel to the direction of travel, except where it is safer to do otherwise. 1926.1431(k)(12)(ii)(E) A complete trial run must be performed to test the route of travel before employees are allowed to occupy the platform. This trial run can be performed at the same time as the trial lift required by paragraph (h) of this section which tests the lift route. 1926.1431(k)(13) Traveling--derricks. Derricks are prohibited from traveling while personnel are hoisted. 1926.1431(m) Pre-lift meeting. A pre-lift meeting must be: 1926.1431(m)(1) Held to review the applicable requirements of this section and the procedures that will be followed. 1926.1431(m)(2) Attended by the equipment operator, signal person (if used for the lift), employees to be hoisted, and the person responsible for the task to be performed. 1926.1431(m)(3) Held prior to the trial lift at each new work location, and must be repeated for any employees newly assigned to the operation. 1926.1431(n) Hoisting personnel near power lines.	No	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific training requirements.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
		Hoisting personnel within 20 feet of a power line that is up to 350 kV, and hoisting personnel within 50 feet of a power line that is over 350 kV, is prohibited, except for work covered by subpart V of this part (Power Transmission and Distribution). 1926.1431(o) Hoisting personnel in drill shafts. When hoisting employees into and out of drill shafts that are up to and including 8 feet in diameter, all of the following requirements must be met: 1926.1431(o)(1) The employee must be in either a personnel platform or on a boatswain's chair. 1926.1431(o)(2) If using a personnel platform, paragraphs (a) through (n) of this section apply. 1926.1431(o)(3) If using a boatswain's chair: 1926.1431(o)(3)(i) The following paragraphs of this section apply: (a), (c), (d)(1), (d)(3), (d)(4), (e)(1), (e)(2), (e)(3), (f)(1), (f)(2)(i), (f)(3)(i), (g), (h), (k)(1), (k)(6), (k)(8), (k)(9), (k)(11)(i), (m), (n). Where the terms "personnel platform" or "platform" are used in these paragraphs, substitute them with "boatswain's chair." 1926.1431(o)(3)(ii) A signal person must be stationed at the shaft opening. 1926.1431(o)(3)(iii) The employee must be hoisted in a slow, controlled descent and ascent. 1926.1431(o)(3)(iv) The employee must use personal fall protection equipment, including a full body harness, attached independent of the crane/derrick. 1926.1431(o)(3)(v) The fall protection equipment must meet the applicable requirements in § 1926.502. 1926.1431(o)(3)(vi) The boatswain's chair itself (excluding the personal fall arrest system anchorages), must be capable of supporting, without failure, its own weight and at least five times the maximum intended load. 1926.1431(o)(3)(vii) No more than one person must be hoisted at a time. 1926.1431(p) Hoisting personnel for pile driving operations. When hoisting an employee in pile driving operations, the following requirements must be met: 1926.1431(p)(1) The employee must be in a personnel platform or boatswain's chair. 1926.1431(p)(2) For lattice boom cranes: Clearly mark the cable (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, or use a spotter who is in direct communication with the operator to inform the operator when this point is reached. For telescopic boom cranes: Clearly mark the cable (so that it can be easily seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, and use a spotter who is in direct communication with the operator to inform the operator when this point is reached. 1926.1431(p)(3) If using a personnel platform, paragraphs (b) through (n) of this section apply. 1926.1431(p)(4) If using a boatswain's chair: 1926.1431(p)(4)(i) The following paragraphs of this section apply: (a), (c), (d)(1), (d)(3), (d)(4), (e)(1), (e)(2), (e)(3), (f)(1), (f)(2)(i), (f)(3)(i), (g), (h), (j), (k)(1), (k)(6), (k)(8), (k)(9), (k)(11)(i), (m), and (n). Where the terms "personnel platform" or "platform" are used in these paragraphs, substitute them with "boatswains chair." 1926.1431(p)(4)(ii) The employee must be hoisted in a slow, controlled descent and ascent. 1926.1431(p)(4)(iii) The employee must use personal fall protection equipment, including a full body harness, independently attached to the lower load block or overhaul ball. 1926.1431(p)(4)(iv) The fall protection equipment must meet the applicable requirements in § 1926.502. 1926.1431(p)(4)(v) The boatswain's chair itself (excluding the personal fall arrest system anchorages), must be capable of supporting, without failure, its own weight and at least five times the maximum intended load. 1926.1431(p)(4)(vi) No more than one person must be hoisted at a time. 1926.1431(r) Hoisting personnel for marine transfer. When hoisting employees solely for transfer to or from a marine worksite, the following requirements must be met: 1926.1431(r)(1) The employee must be in either a personnel platform or a marine-hoisted personnel transfer device. 1926.1431(r)(2) If using a personnel platform, paragraphs (a) through (n) of this section apply. 1926.1431(r)(3) If using a marine-hoisted personnel transfer device: 1926.1431(r)(3)(i) The following paragraphs of this section apply: (a), (c)(2), (d)(1), (d)(3), (d)(4), (e)(1) through (5), (e)(12), (f)(1), (g), (h), (j), (k)(1), (k)(8), (k)(9), (k)(10)(ii), (k)(11)(i), (k)(12), (m), and (n). Where the terms "personnel platform" or "platform" are used in these paragraphs, substitute them with "marine-hoisted personnel transfer device." 1926.1431(r)(3)(ii) The transfer device must be used only for transferring workers. 1926.1431(r)(3)(iii) The number of workers occupying the transfer device must not exceed the maximum number it was designed to hold. 1926.1431(r)(3)(iv) Each employee must wear a U.S. Coast Guard personal flotation device approved for industrial use. 1926.1431(s) Hoisting personnel for storage-tank (steel or concrete), shaft and chimney operations. When hoisting an employee in storage tank (steel or concrete), shaft and chimney operations, the following requirements must be met: 1926.1431(s)(1) The employee must be in a personnel platform except when the employer can demonstrate that use of a personnel platform is infeasible; in such a case, a boatswain's chair must be used. 1926.1431(s)(2) If using a personnel platform, paragraphs (a) through (n) of this section apply. 1926.1431(s)(3) If using a boatswain's chair: 1926.1431(s)(3)(i) The following paragraphs of this section apply: (a), (c), (d)(1), (d)(3), (d)(4), (e)(1), (e)(2), (e)(3), (f)(1), (f)(2)(i), (f)(3)(i), (g), (h), (k)(1), (k)(6), (k)(8), (k)(9), (k)(11)(i), (m), (n). Where the terms "personnel platform" or "platform" are used in these paragraphs, substitute them with "boatswains chair." 1926.1431(s)(3)(ii) The employee must be hoisted in a slow, controlled descent and ascent. 1926.1431(s)(3)(iii) The employee must use personal fall protection equipment, including a full body harness, attached independent of the crane/derrick. When there is no adequate structure for attachment of personal fall arrest equipment as required in § 1926.502(d)(15), the attachment must be to the lower load block or overhaul ball. 1926.1431(s)(3)(iv) The fall protection equipment must meet the applicable requirements in § 1926.502. 1926.1431(s)(3)(v) The boatswain's chair itself (excluding the personal fall arrest system anchorages), must be capable of supporting, without failure, its own weight and at least five times the maximum intended load. 1926.1431(s)(3)(vi) No more than one person must be hoisted at a time.								
	1926.1432 - Multiple-crane/derrick lifts--supplemental requirements.	**1926.1432(a)** *Plan development* . Before beginning a crane/derrick operation in which more than one crane/derrick will be supporting the load, the operation must be planned. The planning must meet the following requirements: **1926.1432(a)(1)** The plan must be developed by a qualified person. **1926.1432(a)(2)** The plan must be designed to ensure that the requirements of this subpart are met. **1926.1432(a)(3)** Where the qualified person determines that engineering expertise is needed for the planning, the employer must ensure that it is provided. **1926.1432(b)** *Plan implementation* . **1926.1432(b)(1)** The multiple-crane/derrick lift must be directed by a person who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons (lift director). **1926.1432(b)(2)** The lift director must review the plan in a meeting with all workers who will be involved with the operation.	No	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific training requirements.	X				
	1926.1433 - Design, construction and testing.	The following requirements apply to equipment that has a manufacturer-rated hoisting/lifting capacity of more than 2,000 pounds. **1926.1433(a)** Crawler, truck and locomotive cranes manufactured prior to November 8, 2010 must meet the applicable requirements for design, construction, and testing as prescribed in ANSI B30.5-1968 (incorporated by reference, *see* § 1926.6), PCSA Std. No. 2 (1968) (incorporated by reference, *see* § 1926.6), the requirements in paragraph (b) of this section, or the applicable DIN standards that were in effect at the time of manufacture. **1926.1433(b)** Mobile (including crawler and truck) and locomotive cranes manufactured on or after November 8, 2010 must meet the following portions of ASME B30.5-2004 (incorporated by reference, *see* § 1926.6) as applicable: **1926.1433(b)(1)** In section 5-1.1.1 ("Load Ratings--Where Stability Governs Lifting Performance"), paragraphs (a)–(d) (including subparagraphs). **1926.1433(b)(2)** In section 5-1.1.2 ("Load Ratings--Where Structural Competence Governs Lifting Performance"), paragraph (b). **1926.1433(b)(3)** Section 5-1.2 ("Stability (Backward and Forward)"). **1926.1433(b)(4)** In section 5-1.3.1 ("Boom Hoist Mechanism"), paragraphs (a), (b)(1) and (b)(2), except that when using rotation resistant rope, § 1926.1414(c)(4)(ii)(A) applies. **1926.1433(b)(5)** In section 5-1.3.2 ("Load Hoist Mechanism"), paragraphs (a)(2) through (a)(4) (including subparagraphs), (b) (including subparagraphs), (c) (first sentence only) and (d). **1926.1433(b)(6)** Section 5-1.3.3 ("Telescoping Boom"). **1926.1433(b)(7)** Section 5-1.4 ("Swing Mechanism"). **1926.1433(b)(8)** In section 5-1.5 ("Crane Travel"), all provisions except 5-1.5.3(d). **1926.1433(b)(9)** In section 5-1.6 ("Controls"), all provisions except 5-1.6.1 (c). **1926.1433(b)(10)** Section 5-1.7.4 ("Sheaves"). **1926.1433(b)(11)** Section 5-1.7.5 ("Sheave sizes"). **1926.1433(b)(12)** In section 5-1.9.1 ("Booms"), paragraph (f). **1926.1433(b)(13)** Section 5-1.9.3 ("Outriggers"). **1926.1433(b)(14)** Section 5-1.9.4 ("Locomotive Crane Equipment"). **1926.1433(b)(15)** Section 5-1.9.7 ("Clutch and Brake Protection"). **1926.1433(b)(16)** In section 5-1.9.11 ("Miscellaneous equipment"), paragraphs (a), (c), (e), and (f). **1926.1433(c)** Prototype testing: mobile (including crawler and truck) and locomotive cranes manufactured on or after November 8, 2010 must meet the prototype testing requirements in Test Option A or Test Option B of this section. Tower cranes manufactured on or after November 8, 2010 must meet the prototype testing requirements in BS EN 14439:2006 (incorporated by reference, *see* § 1926.6). **Note:** Prototype testing of crawler, locomotive and truck cranes manufactured prior to November 8, 2010 must conform to paragraph (a) of this section. **1926.1433(c)(1)(i)** The following applies to equipment with cantilevered booms (such as hydraulic boom cranes): All the tests listed in SAE J1063 (Nov. 1993) Table 1 (incorporated by reference, see Sec. 1926.6) must be performed to load all critical structural elements to their respective limits. All the strength margins listed in SAE J1063 (Nov. 1993) Table 2 (incorporated by reference, *see* § 1926.6) must be met. **1926.1433(c)(1)(ii)** The following applies to equipment with pendant supported lattice booms: All the tests listed in SAE J987 (Jun. 2003) Table 1 (incorporated by reference, *see* § 1926.6) must be performed to load all critical structural elements to their respective limits. All the strength margins listed in SAE J987 (Jun. 2003) Table 2 (incorporated by reference, *see* § 1926.6) must be met. **1926.1433(c)(2)** *Test Option B* . The testing and verification requirements of BS EN 13000:2004 (incorporated by reference, *see* § 1926.6) must be met. In applying BS EN 13000:2004, the following additional requirements must be met: **1926.1433(c)(2)(i)** The following applies to equipment with cantilevered booms (such as hydraulic boom cranes): The analysis methodology (computer modeling) must demonstrate that all load cases listed in SAE J1063 (Nov. 1993) (incorporated by reference, *see* § 1926.6) meet the strength margins listed in SAE J1063 (Nov. 1993) Table 2. **1926.1433(c)(2)(ii)** The following applies to equipment with pendant supported lattice booms: The analysis methodology (computer modeling) must demonstrate that all load cases listed in SAE J987 (Jun. 2003) (incorporated by reference, *see* § 1926.6) meet the strength margins listed in SAE J987 (Jun. 2003) Table 2. **1926.1433(c)(2)(iii)** *Analysis verification* . The physical testing requirements under SAE J1063 (Nov. 1993) (incorporated by reference, *see* § 1926.6) and SAE J987 (Jun. 2003) (incorporated by reference, *see* § 1926.6) must be met unless the reliability of the analysis methodology (computer modeling) has been demonstrated by a documented history of verification through strain gauge measuring or strain gauge measuring in combination with other physical testing. **1926.1433(d)** All equipment covered by this subpart must meet the following requirements: **1926.1433(d)(1)** *Rated capacity and related information* . The information available in the cab (*see* § 1926.1417(c)) regarding "rated capacity" and related information must include, at a minimum, the following information: **1926.1433(d)(1)(i)** A complete range of the manufacturer's equipment rated capacities, as follows: **1926.1433(d)(1)(i)(A)** At all manufacturer approved operating radii, boom angles, work areas, boom lengths and configurations, jib lengths and angles (or offset). **1926.1433(d)(1)(i)(B)** Alternate ratings for use and nonuse of option equipment which affects rated capacities, such as outriggers, stabilizers, and extra counterweights. **1926.1433(d)(1)(ii)** A work area chart for which capacities are listed in the load chart. (**Note:** An example of this type of chart is in ASME B30.5-2004, section 5-1.1.3, Figure 11). **1926.1433(d)(1)(iii)** The work area figure and load chart must clearly indicate the areas where no load is to be handled. **1926.1433(d)(1)(iv)** Recommended reeving for the hoist lines must be shown. **1926.1433(d)(1)(v)** Recommended parts of hoist reeving, size, and type of wire rope for various equipment loads. **1926.1433(d)(1)(vi)** Recommended boom hoist reeving diagram, where applicable; size, type and length of wire rope. **1926.1433(d)(1)(vii)** Tire pressure (where applicable). **1926.1433(d)(1)(viii)** Caution or warnings relative to limitations on equipment and operating procedures, including an indication of the least stable direction. **1926.1433(d)(1)(ix)** Position of the gantry and requirements for intermediate boom suspension (where applicable). **1926.1433(d)(1)(x)** Instructions for boom erection and conditions under which the boom, or boom and jib combinations, may be raised or lowered. **1926.1433(d)(1)(xi)** Whether the hoist holding mechanism is automatically or manually controlled, whether free fall is available, or any combination of these. **1926.1433(d)(1)(xii)** The maximum telescopic travel length of each boom telescopic section. **1926.1433(d)(1)(xiii)** Whether sections are telescoped manually or with power. **1926.1433(d)(1)(xiv)** The sequence and procedure for extending and retracting the telescopic boom section. **1926.1433(d)(1)(xv)** Maximum loads permitted during the boom extending operation, and any limiting conditions or cautions. **1926.1433(d)(1)(xvi)** Hydraulic relief valve settings specified by the manufacturer. **1926.1433(d)(2)** Load hooks (including latched and unlatched types), ball assemblies and load blocks must be of sufficient weight to overhaul the line from the highest hook position for boom or boom and jib lengths and the number of parts of the line in use. **1926.1433(d)(3)** Hook and ball assemblies and load blocks must be marked with their rated capacity and weight. **1926.1433(d)(3)** Hook and ball assemblies and load blocks must be marked with their rated capacity and weight. **1926.1433(d)(4)** *Latching hooks* . **1926.1433(d)(4)(i)** Hooks must be equipped with latches, except where the requirements of paragraph (d)(4)(ii) of this section are met. **1926.1433(d)(4)(ii)** Hooks without latches, or with latches removed or disabled, must not be used unless: **1926.1433(d)(4)(ii)(A)** A qualified person has determined that it is safer to hoist and place the load without latches (or with the latches removed/tied-back). **1926.1433(d)(4)(ii)(B)** Routes for the loads are pre-planned to ensure that no employee is required to work in the fall zone except for employees necessary for the hooking or unhooking of the load. **1926.1433(d)(4)(iii)** The latch must close the throat opening and be designed to retain slings or other lifting devices/accessories in the hook when the rigging apparatus is slack. **1926.1433(d)(5)** *Posted warnings* . Posted warnings required by this subpart as well as those originally supplied with the equipment by the manufacturer must be maintained in legible condition. **1926.1433(d)(6)** An accessible fire extinguisher must be on the equipment. **1926.1433(d)(7)** *Cabs* . Equipment with cabs must meet the following requirements: **1926.1433(d)(7)(i)** Cabs must be designed with a form of adjustable ventilation and method for clearing the windshield for maintaining visibility and air circulation. Examples of means for adjustable ventilation include air conditioner or window that can be opened (for ventilation and air circulation); examples of means for maintaining visibility include heater (for preventing windshield icing), defroster, fan, windshield wiper. **1926.1433(d)(7)(ii)** Cab doors (swinging, sliding) must be designed to prevent inadvertent opening or closing while traveling or operating the machine. Swinging doors adjacent to the operator must open outward. Sliding operator doors must open rearward. **1926.1433(d)(7)(iii)** *Windows* . **1926.1433(d)(7)(iii)(A)** The cab must have windows in front and on both sides of the operator. Forward vertical visibility must be sufficient to give the operator a view of the boom point at all times. **1926.1433(d)(7)(iii)(B)** Windows may have sections designed to be opened or readily removed. Windows with sections designed to be opened must be designed so that they can be secured to prevent inadvertent closure. **1926.1433(d)(7)(iii)(C)** Windows must be of safety glass or material with similar optical and safety properties, that introduce no visible distortion or otherwise obscure visibility that interferes with the safe operation of the equipment. **1926.1433(d)(7)(iv)** A clear passageway must be provided from the operator's station to an exit door on the operator's side. **1926.1433(d)(7)(v)** Areas of the cab roof that serve as a workstation for rigging, maintenance or other equipment-related tasks must be capable of supporting 250 pounds without permanent distortion. **1926.1433(d)(8)** Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, and other parts or components that reciprocate, rotate or otherwise move must be guarded where contact by employees (except for maintenance and repair employees) is possible in the performance of normal duties. **1926.1433(d)(9)** All exhaust pipes, turbochargers, and charge air coolers must be insulated or guarded where contact by employees (except for maintenance and repair employees) is possible in the performance of normal duties. **1926.1433(d)(10)** Hydraulic and pneumatic lines must be protected from damage to the extent feasible. **1926.1433(d)(11)** The equipment must be designed so that exhaust fumes are not discharged in the cab and are discharged in a direction away from the operator. **1926.1433(d)(12)** *Friction mechanisms* . Where friction mechanisms (such as brakes and clutches) are used to control the boom hoist or load line hoist, they must be: **1926.1433(d)(12)(i)** Of a size and thermal capacity sufficient to control all rated loads with the minimum recommended reeving. **1926.1433(d)(12)(ii)** Adjustable to permit compensation for lining wear to maintain proper operation. **1926.1433(d)(13)** *Hydraulic load hoists* . Hydraulic drums must have an integrally mounted holding device or internal static brake to prevent load hoist movement in the event of hydraulic failure. **1926.1433(e)** The employer's obligations under paragraphs (a) through (c) and (d)(7) through (13) of this section are met where the equipment has not changed (except in accordance with § 1926.1434 (Equipment modifications)) and it can refer to documentation from the manufacturer showing that the equipment has been designed, constructed and tested in accordance with those paragraphs.	No	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific training requirements.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1926.1434 - Equipment modifications.	**1926.1434(a)** Modifications or additions which affect the capacity or safe operation of the equipment are prohibited except where the requirements of paragraphs (a)(1), (a)(2), (a)(3), (a)(4), or (a)(5) of this section are met. **1926.1434(a)(1)** Manufacturer review and approval. **1926.1434(a)(1)(i)** The manufacturer approves the modifications/additions in writing. **1926.1434(a)(1)(ii)** The load charts, procedures, instruction manuals and instruction plates/tags/decals are modified as necessary to accord with the modification/addition. **1926.1434(a)(1)(iii)** The original safety factor of the equipment is not reduced. **1926.1434(a)(2)** Manufacturer refusal to review request. The manufacturer is provided a detailed description of the proposed modification/addition, is asked to approve the modification/addition, but it declines to review the technical merits of the proposal or fails, within 30 days, to acknowledge the request or initiate the review, and all of the following are met: **1926.1434(a)(2)(i)** A registered professional engineer who is a qualified person with respect to the equipment involved: **1926.1434(a)(2)(i)(A)** Approves the modification/addition and specifies the equipment configurations to which that approval applies, and 1926.1434(a)(2)(i)(B) Modifies load charts, procedures, instruction manuals and instruction plates/tags/decals as necessary to accord with the modification/addition. **1926.1434(a)(2)(ii)** The original safety factor of the equipment is not reduced. **1926.1434(a)(3)** Unavailable manufacturer. The manufacturer is unavailable and the requirements of paragraphs (a)(2)(i) and (ii) of this section are met. **1926.1434(a)(4)** Manufacturer does not complete the review within 120 days of the request. The manufacturer is provided a detailed description of the proposed modification/addition, is asked to approve the modification/addition, agrees to review the technical merits of the proposal, but fails to complete the review of the proposal within 120 days of the date it was provided the detailed description of the proposed modification/addition, and the requirements of paragraphs (a)(2)(i) and (ii) of this section are met. **1926.1434(a)(5)** Multiple manufacturers of equipment designed for use on marine work sites. The equipment is designed for marine work sites, contains major structural components from more than one manufacturer, and the requirements of paragraphs (a)(2)(i) and (ii) of this section are met. **1926.1434(b)** Modifications or additions which affect the capacity or safe operation of the equipment are prohibited where the manufacturer, after a review of the technical safety merits of the proposed modification/addition, rejects the proposal and explains the reasons for the rejection in a written response. If the manufacturer rejects the proposal but does not explain the reasons for the rejection in writing, the employer may treat this as a manufacturer refusal to review the request under paragraph (a)(2) of this section. 1926.1434(c) The provisions in paragraphs (a) and (b) of this section do not apply to modifications made or approved by the U.S. military.	No	Policy provides information about crane use, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including specific training requirements.	X				
.0 Subpart O - chinery and chine Guarding									
	1910.212 - General requirements for all machines.	**1910.212(a)(1)** Types of guarding. One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks. Examples of guarding methods are-barrier guards, two-hand tripping devices, electronic safety devices, etc. **1910.212(a)(2)** General requirements for machine guards. Guards shall be affixed to the machine where possible and secured elsewhere if for any reason attachment to the machine is not possible. The guard shall be such that it does not offer an accident hazard in itself.	Partial	Policy requires machine guarding to be in place however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.215 - Abrasive wheel machinery.	**1910.215(a)(1)** Machine guarding. Abrasive wheels shall be used only on machines provided with safety guards as defined in the following paragraphs of this section, except: **1910.215(a)(1)(i)** Wheels used for internal work while within the work being ground; **1910.215(a)(1)(ii)** Mounted wheels, used in portable operations, 2 inches and smaller in diameter; and **1910.215(a)(1)(iii)** Types 16, 17, 18, 18R, and 19 cones, plugs, and threaded hole pot balls where the work offers protection. **1910.215(a)(2)** Guard design. The safety guard shall cover the spindle end, nut, and flange projections. The safety guard shall be mounted so as to maintain proper alignment with the wheel, and the strength of the fastenings shall exceed the strength of the guard, except: **1910.215(a)(2)(i)** Safety guards on all operations where the work provides a suitable measure of protection to the operator, may be so constructed that the spindle end, nut, and outer flange are exposed; and where the nature of the work is such as to entirely cover the side of the wheel, the side covers of the guard may be omitted; and **1910.215(a)(2)(ii)** The spindle end, nut, and outer flange may be exposed on machines designed as portable saws. **1910.215(a)(3)** Flanges. Grinding machines shall be equipped with flanges in accordance with paragraph (c) of this section.	Partial	Policy requires machine guarding to be in place however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
.0 Subpart P - Hand l Portable Powered ols and Other Hand- d Equipment									
	1910.243 - Guarding of portable powered tools.	**1910.243(a)(1)(i)** All portable, power-driven circular saws having a blade diameter greater than 2 in. shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to covering position. **1910.243(a)(2)(i)** All hand-held powered circular saws having a blade diameter greater than 2 inches, electric, hydraulic or pneumatic chain saws, and percussion tools without positive accessory holding means shall be equipped with a constant pressure switch or control that will shut off the power when the pressure is released. All hand-held gasoline powered chain saws shall be equipped with a constant pressure throttle control that will shut off the power to the saw chain when the pressure is released. **1910.243(a)(2)(ii)** All hand-held powered drills, tappers, fastener drivers, horizontal, vertical, and angle grinders with wheels greater than 2 inches in diameter, disc sanders with discs greater than 2 inches in diameter, belt sanders, reciprocating saws, saber, scroll, and jig saws with blade shanks greater than a nominal one-fourth inch, and other similarly operating powered tools shall be equipped with a constant pressure switch or control, and may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on. **1910.243(a)(2)(iii)(a)** All other hand-held powered tools, such as, but not limited to, platen sanders, grinders with wheels 2 inches in diameter or less, disc sanders with discs 2 inches in diameter or less, routers, planers, laminate trimmers, nibblers, shears, saber, scroll, and jig saws with blade shanks a nominal one-fourth of an inch wide or less, may be equipped with either a positive "on-off" control, or other controls as described by paragraph (a)(2)(i) and (ii) of this section. **1910.243(a)(3)** Portable belt sanding machines. Belt sanding machines shall be provided with guards at each nip point where the sanding belt runs onto a pulley. These guards shall effectively prevent the hands or fingers of the operator from coming in contact with the nip points. The unused run of the sanding belt shall be guarded against accidental contact. **1910.243(b)** Pneumatic powered tools and hose - **1910.243(b)(1)** Tool retainer. A tool retainer shall be installed on each piece of utilization equipment which, without such a retainer, may eject the tool. **1910.243(b)(2)** Airhose. Hose and hose connections used for conducting compressed air to utilization equipment shall be designed for the pressure and service to which they are subjected. **1910.243(c)** Portable abrasive wheels - **1910.243(c)(1)** General requirements. Abrasive wheels shall be used only on machine provided with safety guards as defined in paragraph (c) (1) through (4) of this section. **1910.243(c)(1)(i)** Exceptions. The requirements of this paragraph (c)(1) shall not apply to the following classes of wheels and conditions. **1910.243(c)(1)(i)(a)** Wheels used for internal work while within the work being ground; **1910.243(c)(1)(i)(b)** Mounted wheels used in portable operations 2 inches and smaller in diameter; (see definition 1910.241(b) (1)); and **1910.243(c)(1)(i)(c)** Types 16, 17, 18, 18R, and 19 cones, and plugs, and threaded hole pot balls where the work offers protection. **1910.243(c)(1)(ii)(a)** A safety guard shall cover the spindle end, nut and flange projections. The safety guard shall be mounted so as to maintain proper alignment with the wheel, and the strength of the fastenings shall exceed the strength of the guard.	Partial	Policy requires machine guarding to be in place however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.244 - Other portable tools and equipment.	**1910.244(a)(1)** Loading and marking. **1910.244(a)(1)(i)** The operator shall make sure that the jack used has a rating sufficient to lift and sustain the load. **1910.244(a)(1)(ii)** The rated load shall be legibly and permanently marked in a prominent location on the jack by casting, stamping, or other suitable means. **1910.244(a)(2)** Operation and maintenance. **1910.244(a)(2)(i)** In the absence of a firm foundation, the base of the jack shall be blocked. If there is a possibility of slippage of the cap, a block shall be placed in between the cap and the load. **1910.244(a)(2)(ii)** The operator shall watch the stop indicator, which shall be kept clean, in order to determine the limit of travel. The indicated limit shall not be overrun. **1910.244(a)(2)(iii)** After the load has been raised, it shall be cribbed, blocked, or otherwise secured at once. **1910.244(a)(2)(iv)** Hydraulic jacks exposed to freezing temperatures shall be supplied with an adequate antifreeze liquid. **1910.244(a)(2)(v)** All jacks shall be properly lubricated at regular intervals. **1910.244(a)(2)(vi)** Each jack shall be thoroughly inspected at times which depend upon the service conditions. Inspections shall be not less frequent than the following: **1910.244(a)(2)(vi)(a)** For constant or intermittent use at one locality, once every 6 months, **1910.244(a)(2)(vi)(b)** For jacks sent out of shop for special work, when sent out and when returned, **1910.244(a)(2)(vi)(c)** For a jack subjected to abnormal load or shock, immediately before and immediately thereafter. **1910.244(a)(2)(vii)** Repair or replacement parts shall be examined for possible defects. **1910.244(a)(2)(viii)** Jacks which are out of order shall be tagged accordingly, and shall not be used until repairs are made. **1910.244(b)** Abrasive blast cleaning nozzles. The blast cleaning nozzles shall be equipped with an operating valve which must be held open manually. A support shall be provided on which the nozzle may be mounted when it is not in use.	Partial	Policy requires machine guarding to be in place and proper tool usage, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.300 - General requirements.	1926.300(a) Condition of tools. All hand and power tools and similar equipment, whether furnished by the employer or the employee, shall be maintained in a safe condition. 1926.300(b) Guarding. 1926.300(b)(1) When power operated tools are designed to accommodate guards, they shall be equipped with such guards when in use. 1926.300(b)(2) Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating or moving parts of equipment shall be guarded if such parts are exposed to contact by employees or otherwise create a hazard. Guarding shall meet the requirements as set forth in American National Standards Institute, B15.1-1953 (R1958), Safety Code for Mechanical Power-Transmission Apparatus. 1926.300(b)(3) "Types of guarding." One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks. Examples of guarding methods are - barrier guards, two-hand tripping devices, electronic safety devices, etc. 1926.300(b)(4) "Point of operation guarding." 1926.300(b)(4)(i) Point of operation is the area on a machine where work is actually performed upon the material being processed. 1926.300(b)(4)(ii) The point of operation of machines whose operation exposes an employee to injury, shall be guarded. The guarding device shall be in conformity with any appropriate standards therefor, or, in the absence of applicable specific standards, shall be so designed and constructed as to prevent the operator from having any part of his body in the danger zone during the operating cycle. 1926.300(b)(4)(iii) Special handtools for placing and removing material shall be such as to permit easy handling of material without the operator placing a hand in the danger zone. Such tools shall not be in lieu of other guarding required by this section, but can only be used to supplement protection provided. 1926.300(b)(4)(iv) The following are some of the machines which usually require point of operation guarding: 1926.300(b)(4)(iv)(a) Guillotine cutters. 1926.300(b)(4)(iv)(b) Shears. 1926.300(b)(4)(iv)(c) Alligator shears. 1926.300(b)(4)(iv)(d) Powered presses. 1926.300(b)(4)(iv)(e) Milling machines. 1926.300(b)(4)(iv)(f) Power saws. 1926.300(b)(4)(iv)(g) Jointers. 1926.300(b)(4)(iv)(h) Portable power tools. 1926.300(b)(4)(iv)(i) Forming rolls and calendars. 1926.300(b)(5) "Exposure of blades." When the periphery of the blades of a fan is less than 7 feet (2.128 m) above the floor or working level, the blades shall be guarded. The guard shall have openings no larger than 1/2 inch (1.27 cm). 1926.300(b)(6) "Anchoring fixed machinery." Machines designed for a fixed location shall be securely anchored to prevent walking or moving. 1926.300(b)(7) "Guarding of abrasive wheel machinery - exposure adjustment." Safety guards of the types described in paragraphs (b)(8) and (9) of this section, where the operator stands in front of the opening, shall be constructed so that the peripheral protecting member can be adjusted to the constantly decreasing diameter of the wheel. The maximum angular exposure above the horizontal plane of the wheel spindle as specified in paragraphs (b)(8) and (9) of this section shall never be exceeded, and the distance between the wheel periphery and the adjustable tongue or the end of the peripheral member at the top shall never exceed 1/4 inch (0.635 cm). (See Figures 1-1 through 1-6.) 1926.300(c) Personal protective equipment. Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases shall be provided with the particular personal protective equipment necessary to protect them from the hazard. All personal protective equipment shall meet the requirements and be maintained according to Subparts D and E of this part. 1926.300(d) Switches. 1926.300(d)(1) All hand-held powered platen sanders, grinders with wheels 2-inch diameter or less, routers, planers, laminate trimmers, nibblers, shears, scroll saws, and jigsaws with blade shanks one-fourth of an inch wide or less may be equipped with only a positive "on-off" control. 1926.300(d)(2) All hand-held powered drills, tappers, fastener drivers, horizontal, vertical, and angle grinders with wheels greater than 2 inches in diameter, disc sanders, belt sanders, reciprocating saws, saber saws, and other similar operating powered tools shall be equipped with a momentary contact "on-off" control and may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on. 1926.300(d)(3) All other hand-held powered tools, such as circular saws, chain saws, and percussion tools without positive accessory holding means, shall be equipped with a constant pressure switch that will shut off the power when the pressure is released. 1926.300(d)(4) The requirements of this paragraph shall become effective on July 15, 1972. 1926.300(d)(5) Exception: This paragraph does not apply to concrete vibrators, concrete breakers, powered tampers, jack hammers, rock drills, and similar hand operated power tools.	Partial	Policy requires machine guarding to be in place and proper tool usage, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.301 - Hand tools.	**1926.301(a)** Employers shall not issue or permit the use of unsafe hand tools. **1926.301(b)** Wrenches, including adjustable, pipe, end, and socket wrenches shall not be used when jaws are sprung to the point that slippage occurs. **1926.301(c)** Impact tools, such as drift pins, wedges, and chisels, shall be kept free of mushroomed heads. **1926.301(d)** The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.	Partial	Policy requires machine guarding to be in place and proper tool usage, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1926.302 - Power-operated hand tools.	**1926.302(a)** Electric power-operated tools. **1926.302(a)(1)** Electric power operated tools shall either be of the approved double-insulated type or grounded in accordance with Subpart K of this part. **1926.302(a)(2)** The use of electric cords for hoisting or lowering tools shall not be permitted. **1926.302(b)** Pneumatic power tools. **1926.302(b)(1)** Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected. **1926.302(b)(2)** Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled. **1926.302(b)(3)** All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 p.s.i. pressure at the tool shall have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface. **1926.302(b)(4)** Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment which meets the requirements of Subpart E of this part. The 30 p.s.i. requirement does not apply for concrete form, mill scale and similar cleaning purposes. **1926.302(b)(5)** The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded, **1926.302(b)(6)** The use of hoses for hoisting or lowering tools shall not be permitted. **1926.302(b)(7)** All hoses exceeding 1/2-inch inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure. **1926.302(b)(8)** Airless spray guns of the type which atomize paints and fluids at high pressures (1,000 pounds or more per square inch) shall be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released. **1926.302(b)(9)** In lieu of the above, a diffuser nut which will prevent high pressure, high velocity release, while the nozzle tip is removed, plus a nozzle tip guard which will prevent the tip from coming into contact with the operator, or other equivalent protection, shall be provided. **1926.302(b)(10)** "Abrasive blast cleaning nozzles." The blast cleaning nozzles shall be equipped with an operating valve which must be held open manually. A support shall be provided on which the nozzle may be mounted when it is not in use. **1926.302(c)** Fuel powered tools. **1926.302(c)(1)** All fuel powered tools shall be stopped while being refueled, serviced, or maintained, and fuel shall be transported, handled, and stored in accordance with Subpart F of this part. **1926.302(c)(2)** When fuel powered tools are used in enclosed spaces, the applicable requirements for concentrations of toxic gases and use of personal protective equipment, as outlined in Subparts D and E of this part, shall apply. **1926.302(d)** Hydraulic power tools. **1926.302(d)(1)** The fluid used in hydraulic powered tools shall be fire-resistant fluids approved under Schedule 30 of the U.S. Bureau of Mines, Department of the Interior, and shall retain its operating characteristics at the most extreme temperatures to which it will be exposed. **1926.302(d)(2)** The manufacturer's safe operating pressures for hoses, valves, pipes, filters, and other fittings shall not be exceeded. **1926.302(e)** Powder-actuated tools. **1926.302(e)(1)** Only employees who have been trained in the operation of the particular tool in use shall be allowed to operate a powder-actuated tool. **1926.302(e)(2)** The tool shall be tested each day before loading to see that safety devices are in proper working condition. The method of testing shall be in accordance with the manufacturer's recommended procedure. **1926.302(e)(3)** Any tool found not in proper working order, or that develops a defect during use, shall be immediately removed from service and not used until properly repaired. **1926.302(e)(4)** Personal protective equipment shall be in accordance with Subpart E of this part. **1926.302(e)(5)** Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any employees. Hands shall be kept clear of the open barrel end. **1926.302(e)(6)** Loaded tools shall not be left unattended. **1926.302(e)(7)** Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, surface-hardened steel, glass block, live rock, face brick, or hollow tile. **1926.302(e)(8)** Driving into materials easily penetrated shall be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side. **1926.302(e)(9)** No fastener shall be driven into a spalled area caused by an unsatisfactory fastening. **1926.302(e)(10)** Tools shall not be used in an explosive or flammable atmosphere. **1926.302(e)(11)** All tools shall be used with the correct shield, guard, or attachment recommended by the manufacturer. **1926.302(e)(12)** Powder-actuated tools used by employees shall meet all other applicable requirements of American National Standards Institute, A10.3-1970, Safety Requirements for Explosive-Actuated Fastening Tools.	Partial	Policy requires machine guarding to be in place and proper tool usage, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.303 - Abrasive wheels and tools.	**1926.303(a)** Power. All grinding machines shall be supplied with sufficient power to maintain the spindle speed at safe levels under all conditions of normal operation. 1926.303(b) Guarding. **1926.303(b)(1)** Grinding machines shall be equipped with safety guards in conformance with the requirements of American National Standards Institute, B7.1-1970, Safety Code for the Use, Care and Protection of Abrasive Wheels, and paragraph (d) of this section. **1926.303(b)(2)** "Guarding design." The safety guard shall cover the spindle end, nut, and flange projections. The safety guard shall be mounted so as to maintain proper alignment with the wheel, and the strength of the fastenings shall exceed the strength of the guard, except: **1926.303(b)(2)(i)** Safety guards on all operations where the work provides a suitable measure of protection to the operator, may be so constructed that the spindle end, nut, and outer flange are exposed; and where the nature of the work is such as to entirely cover the side of the wheel, the side covers of the guard may be omitted; and **1926.303(b)(2)(ii)** The spindle end, nut, and outer flange may be exposed on machines designed as portable saws. **1926.303(c)** Use of abrasive wheels. **1926.303(c)(1)** Floor stand and bench mounted abrasive wheels, used for external grinding, shall be provided with safety guards (protection hoods). The maximum angular exposure of the grinding wheel periphery and sides shall be not more than 90 deg, except that when work requires contact with the wheel below the horizontal plane of the spindle, the angular exposure shall not exceed 125 deg. In either case, the exposure shall begin not more than 65 deg. above the horizontal plane of the spindle. Safety guards shall be strong enough to withstand the effect of a bursting wheel. **1926.303(c)(2)** Floor and bench-mounted grinders shall be provided with work rests which are rigidly supported and readily adjustable. Such work rests shall be kept at a distance not to exceed one-eighth inch from the surface of the wheel. **1926.303(c)(3)** Cup type wheels used for external grinding shall be protected by either a revolving cup guard or a band type guard in accordance with the provisions of the American National Standards Institute, B7.1-1970 Safety Code for the Use, Care, and Protection of Abrasive Wheels. All other portable abrasive wheels used for external grinding, shall be provided with safety guards (protection hoods) meeting the requirements of paragraph (c)(5) of this section, except as follows: **1926.303(c)(3)(i)** When the work location makes it impossible, a wheel equipped with safety flanges, as described in paragraph (c)(6) of this section, shall be used; **1926.303(c)(3)(ii)** When wheels 2 inches or less in diameter which are securely mounted on the end of a steel mandrel are used. **1926.303(c)(4)** Portable abrasive wheels used for internal grinding shall be provided with safety flanges (protection flanges) meeting the requirements of paragraph (c)(6) of this section, except as follows: **1926.303(c)(4)(i)** When wheels 2 inches or less in diameter which are securely mounted on the end of a steel mandrel are used; **1926.303(c)(4)(ii)** If the wheel is entirely within the work being ground while in use. **1926.303(c)(5)** When safety guards are required, they shall be so mounted as to maintain proper alignment with the wheel, and the guard and its fastenings shall be of sufficient strength to retain fragments of the wheel in case of accidental breakage. The maximum angular exposure of the grinding wheel periphery and sides shall not exceed 180 deg. **1926.303(c)(6)** When safety flanges are required, they shall be used only with wheels designed to fit the flanges. Only safety flanges, of a type and design and properly assembled so as to ensure that the pieces of the wheel will be retained in case of accidental breakage, shall be used. **1926.303(c)(7)** All abrasive wheels shall be closely inspected and ring-tested before mounting to ensure that they are free from cracks or defects. **1926.303(c)(8)** Grinding wheels shall fit freely on the spindle and shall not be forced on. The spindle nut shall be tightened only enough to hold the wheel in place. **1926.303(c)(9)** All employees using abrasive wheels shall be protected by eye protection equipment in accordance with the requirements of Subpart E of this part, except when adequate eye protection is afforded by eye shields which are permanently attached to the bench or floor stand. **1926.303(d)** Other requirements. All abrasive wheels and tools used by employees shall meet other applicable requirements of American National Standards Institute, B7.1-1970, Safety Code for the Use, Care and Protection of Abrasive Wheels. **1926.303(e)** "Work rests." On offhand grinding machines, work rests shall be used to support the work. They shall be of rigid construction and designed to be adjustable to compensate for wheel wear. Work rests shall be kept adjusted closely to the wheel with a maximum opening of 1/8 inch (0.3175 cm) to prevent the work from being jammed between the wheel and the rest, which may cause wheel breakage. The work rest shall be securely clamped after each adjustment. The adjustment shall not be made with the wheel in motion.	Partial	Policy requires machine guarding to be in place and proper tool usage, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.252 - General requirements.	From the HASP "Except where more stringent requirements may exist, all hot work shall be in accordance with **OSHA 29 CFR 1926 Subpart J."**	Partial	Policy requires references OSHA 29 CFR 1926 subpart J. Policy defines welding as a type of hot work and the requirements for fire watch, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.253 - Oxygen-fuel gas welding and cutting.	From the HASP "Except where more stringent requirements may exist, all hot work shall be in accordance with **OSHA 29 CFR 1926 Subpart J."**	Partial	Policy requires references OSHA 29 CFR 1926 subpart J. Policy defines welding as a type of hot work however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.254 - Arc welding and cutting.	From the HASP "Except where more stringent requirements may exist, all hot work shall be in accordance with **OSHA 29 CFR 1926 Subpart J."**	Partial	Policy requires references OSHA 29 CFR 1926 subpart J. Policy defines welding as a type of hot work however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.255 - Resistance welding.	From the HASP "Except where more stringent requirements may exist, all hot work shall be in accordance with **OSHA 29 CFR 1926 Subpart J."**	Partial	Policy requires references OSHA 29 CFR 1926 subpart J. Policy defines welding as a type of hot work however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
:6 Subpart J - lding and Cutting									
	1926.350 - Gas welding and cutting.	**1926.350(a)** Transporting, moving, and storing compressed gas cylinders. **1926.350(a)(1)** Valve protection caps shall be in place and secured. **1926.350(a)(2)** When cylinders are hoisted, they shall be secured on a cradle, slingboard, or pallet. They shall not be hoisted or transported by means of magnets or choker slings. **1926.350(a)(3)** Cylinders shall be moved by tilting and rolling them on their bottom edges. They shall not be intentionally dropped, struck, or permitted to strike each other violently. **1926.350(a)(4)** When cylinders are transported by powered vehicles, they shall be secured in a vertical position. **1926.350(a)(5)** Valve protection caps shall not be used for lifting cylinders from one vertical position to another. Bars shall not be used under valves or valve protection caps to pry cylinders loose when frozen. Warm, not boiling, water shall be used to thaw cylinders loose. **1926.350(a)(6)** Unless cylinders are firmly secured on a special carrier intended for this purpose, regulators shall be removed and valve protection caps put in place before cylinders are moved. **1926.350(a)(7)** A suitable cylinder truck, chain, or other steadying device shall be used to keep cylinders from being knocked over while in use. **1926.350(a)(8)** When work is finished, when cylinders are empty, or when cylinders are moved at any time, the cylinder valve shall be closed. **1926.350(a)(9)** Compressed gas cylinders shall be secured in an upright position at all times except, if necessary, for short periods of time while cylinders are actually being hoisted or carried. **1926.350(a)(10)** Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet (6.1 m) or by a noncombustible barrier at least 5 feet (1.5 m) high having a fire-resistance rating of at least one-half hour. **1926.350(a)(11)** Inside of buildings, cylinders shall be stored in a well-protected, well-ventilated, dry location, at least 20 feet (6.1 m) from highly combustible materials such as oil or excelsior. Cylinders should be stored in definitely assigned places away from elevators, stairs, or gangways. Assigned storage places shall be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering by unauthorized persons. Cylinders shall not be kept in unventilated enclosures such as lockers and cupboards. **1926.350[a](12)** The in-plant handling, storage, and utilization of all compressed gases in cylinders, portable tanks, rail tankcars, or motor vehicle cargo tanks shall be in accordance with Compressed Gas Association Pamphlet P-1-1965. **1926.350(b)** Placing cylinders. **1926.350(b)(1)** Cylinders shall be kept far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them. When this is impractical, fire resistant shields shall be provided. **1926.350(b)(2)** Cylinders shall be placed where they cannot become part of an electrical circuit. Electrodes shall not be struck against a cylinder to strike an arc. **1926.350(b)(3)** Fuel gas cylinders shall be placed with valve end up whenever they are in use. They shall not be placed in a location where they would be subject to open flame, hot metal, or other sources of artificial heat. **1926.350(b)(4)** Cylinders containing oxygen or acetylene or other fuel gas shall not be taken into confined spaces. **1926.350(c)** Treatment of cylinders. **1926.350(c)(1)** Cylinders, whether full or empty, shall not be used as rollers or supports. **1926.350(c)(2)** No person other than the gas supplier shall attempt to mix gases in a cylinder. No one except the owner of the cylinder or person authorized by him, shall refill a cylinder. No one shall use a cylinder's contents for purposes other than those intended by the supplier. All cylinders used shall meet the Department of Transportation requirements published in 49 CFR Part 178, Subpart C, Specification for Cylinders. **1926.350(c)(3)** No damaged or defective cylinder shall be used. **1926.350(d)** Use of fuel gas. The employer shall thoroughly instruct employees in the safe use of fuel gas, as follows: **1926.350(d)(1)** Before a regulator to a cylinder valve is connected, the valve shall be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might otherwise enter the regulator.) The person cracking the valve shall stand to one side of the outlet, not in front of it. The valve of a fuel gas cylinder shall not be cracked where the gas would reach welding work, sparks, flame, or other possible sources of ignition. **1926.350(d)(2)** The cylinder valve shall always be opened slowly to prevent damage to the regulator. For quick closing, valves on fuel gas cylinders shall not be opened more than 1 1/2 turns. When a special wrench is required, it shall be left in position on the stem of the valve while the cylinder is in use so that the fuel gas flow can be shut off quickly in case of an emergency. In the case of manifolded or coupled cylinders, at least one such wrench shall always be available for immediate use. Nothing shall be placed on top of a fuel gas cylinder, when in use, which may damage the safety device or interfere with the quick closing of the valve. **1926.350(d)(3)** Fuel gas shall not be used from cylinders through torches or other devices which are equipped with shutoff valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold. **1926.350(d)(4)** Before a regulator is removed from a cylinder valve, the cylinder valve shall always be closed and the gas released from the regulator. **1926.350(d)(5)** If, when the valve on a fuel gas cylinder is opened, there is found to be a leak around the valve stem, the valve shall be closed and the gland nut tightened. If this action does not stop the leak, the use of the cylinder shall be discontinued, and it shall be properly tagged and removed from the work area. In the event that fuel gas should leak from the cylinder valve, rather than from the valve stem, and the gas cannot be shut off, the cylinder shall be properly tagged and removed from the work area. If a regulator attached to a cylinder valve will effectively stop a leak through the valve seat, the cylinder need not be removed from the work area. **1926.350(d)(6)** If a leak should develop at a fuse plug or other safety device, the cylinder shall be removed from the work area. **1926.350(e)** Fuel gas and oxygen manifolds. **1926.350(e)(1)** Fuel gas and oxygen manifolds shall bear the name of the substance they contain in letters at least 1-inch high which shall be either painted on the manifold or on a sign permanently attached to it. **1926.350(e)(2)** Fuel gas and oxygen manifolds shall be placed in safe, well ventilated, and accessible locations. They shall not be located within enclosed spaces. **1926.350(e)(3)** Manifold hose connections, including both ends of the supply hose that lead to the manifold, shall be such that the hose cannot be interchanged between fuel gas and oxygen manifolds and supply header connections. Adapters shall not be used to permit the interchange of hose. Hose connections shall be kept free of grease and oil. **1926.350(e)(4)** When not in use, manifold and header hose connections shall be capped. **1926.350(e)(5)** Nothing shall be placed on top of a manifold, when in use, which will damage the manifold or interfere with the quick closing of the valves. **1926.350(f)** Hose. **1926.350(f)(1)** Fuel gas hose and oxygen hose shall be easily distinguishable from each other. The contrast may be made by different colors or by surface characteristics readily distinguishable by the sense of touch. Oxygen and fuel gas hoses shall not be interchangeable. A single hose having more than one gas passage shall not be used. **1926.350(f)(2)** When parallel sections of oxygen and fuel gas hose are taped together, not more than 4 inches out of 12 inches shall be covered by tape. **1926.350(f)(3)** All hose in use, carrying acetylene, oxygen, natural or manufactured fuel gas, or any gas or substance which may ignite	Partial	Policy requires references OSHA 29 CFR 1926 subpart J. Policy defines welding as a type of hot work however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
		or enter into combustion, or be in any way harmful to employees, shall be inspected at the beginning of each working shift. Defective hose shall be removed from service. **1926.350(f)(4)** Hose which has been subject to flashback, or which shows evidence of severe wear or damage, shall be tested to twice the normal pressure to which it is subject, but in no case less than 300 p.s.i. Defective hose, or hose in doubtful condition, shall not be used. **1926.350(f)(5)** Hose couplings shall be of the type that cannot be unlocked or disconnected by means of a straight pull without rotary motion. **1926.350(f)(6)** Boxes used for the storage of gas hose shall be ventilated. **1926.350(f)(7)** Hoses, cables, and other equipment shall be kept clear of passageways, ladders and stairs. **1926.350(g)** Torches. **1926.350(g)(1)** Clogged torch tip openings shall be cleaned with suitable cleaning wires, drills, or other devices designed for such purpose. **1926.350(g)(2)** Torches in use shall be inspected at the beginning of each working shift for leaking shutoff valves, hose couplings, and tip connections. Defective torches shall not be used. **1926.350(g)(3)** Torches shall be lighted by friction lighters or other approved devices, and not by matches or from hot work. **1926.350(h)** Regulators and gauges. Oxygen and fuel gas pressure regulators, including their related gauges, shall be in proper working order while in use. **1926.350(i)** Oil and grease hazards. Oxygen cylinders and fittings shall be kept away from oil or grease. Cylinders, cylinder caps and valves, couplings, regulators, hose, and apparatus shall be kept free from oil or greasy substances and shall not be handled with oily hands or gloves. Oxygen shall not be directed at oily surfaces, greasy clothes, or within a fuel oil or other storage tank or vessel. **1926.350(j)** Additional rules. For additional details not covered in this subpart, applicable technical portions of American National Standards Institute, Z49.1-1967, Safety in Welding and Cutting, shall apply.							
	1926.351 - Arc welding and cutting.	**1926.351(a)** Manual electrode holders. **1926.351(a)[1)** Only manual electrode holders which are specifically designed for arc welding and cutting, and are of a capacity capable of safely handling the maximum rated current required by the electrodes, shall be used. **1926.351(a)(2)** Any current-carrying parts passing through the portion of the holder which the arc welder or cutter grips in his hand, and the outer surfaces of the jaws of the holder, shall be fully insulated against the maximum voltage encountered to ground. **1926.351(b)** Welding cables and connectors. **1926.351(b)(1)** All arc welding and cutting cables shall be of the completely insulated, flexible type, capable of handling the maximum current requirements of the work in progress, taking into account the duty cycle under which the arc welder or cutter is working. **1926.351(b)(2)** Only cable free from repair or splices for a minimum distance of 10 feet from the cable end to which the electrode holder is connected shall be used, except that cables with standard insulated connectors or with splices whose insulating quality is equal to that of the cable are permitted. **1926.351(b)(3)** When it becomes necessary to connect or splice lengths of cable one to another, substantial insulated connectors of a capacity at least equivalent to that of the cable shall be used. If connections are effected by means of cable lugs, they shall be securely fastened together to give good electrical contact, and the exposed metal parts of the lugs shall be completely insulated. **1926.351(b)(4)** Cables in need of repair shall not be used. When a cable, other than the cable lead referred to in paragraph (b)(2) of this section, becomes worn to the extent of exposing bare conductors, the portion thus exposed shall be protected by means of rubber and friction tape or other equivalent insulation. **1926.351(c)** Ground returns and machine grounding. **1926.351(c)(1)** A ground return cable shall have a safe current carrying capacity equal to or exceeding the specified maximum output capacity of the arc welding or cutting unit which it services. When a single ground return cable services more than one unit, its safe current-carrying capacity shall equal or exceed the total specified maximum output capacities of all the units which it services. **1926.351(c)(2)** Pipelines containing gases or flammable liquids, or conduits containing electrical circuits, shall not be used as a ground return. For welding on natural gas pipelines, the technical portions of regulations issued by the Department of Transportation, Office of Pipeline Safety, 49 CFR Part 192, Minimum Federal Safety Standards for Gas Pipelines, shall apply. **1926.351(c)(3)** When a structure or pipeline is employed as a ground return circuit, it shall be determined that the required electrical contact exists at all joints. The generation of an arc, sparks, or heat at any point shall cause rejection of the structures as a ground circuit. **1926.351(c)(4)** When a structure or pipeline is continuously employed as a ground return circuit, all joints shall be bonded, and periodic inspections shall be conducted to ensure that no condition of electrolysis or fire hazard exists by virtue of such use. **1926.351(c)(5)** The frames of all arc welding and cutting machines shall be grounded either through a third wire in the cable containing the circuit conductor or through a separate wire which is grounded at the source of the current. Grounding circuits, other than by means of the structure, shall be checked to ensure that the circuit between the ground and the grounded power conductor has resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current. **1926.351(c)(6)** All ground connections shall be inspected to ensure that they are mechanically strong and electrically adequate for the required current. **1926.351(d)** Operating instructions. Employers shall instruct employees in the safe means of arc welding and cutting as follows: **1926.351(d)(1)** When electrode holders are to be left unattended, the electrodes shall be removed and the holders shall be so placed or protected that they cannot make electrical contact with employees or conducting objects. **1926.351(d)(2)** Hot electrode holders shall not be dipped in water; to do so may expose the arc welder or cutter to electric shock. **1926.351(d)(3)** When the arc welder or cutter has occasion to leave his work or to stop work for any appreciable length of time, or when the arc welding or cutting machine is to be moved, the power supply switch to the equipment shall be opened. **1926.351(d)(4)** Any faulty or defective equipment shall be reported to the supervisor. **1926.351(d)(5)** See 1926.406(c) for additional requirements. **1926.351(e)** Shielding. Whenever practicable, all arc welding and cutting operations shall be shielded by noncombustible or flameproof screens which will protect employees and other persons working in the vicinity from the direct rays of the arc.	Partial	Policy requires references OSHA 29 CFR 1926 subpart J. Policy defines welding as a type of hot work however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.352 - Fire prevention.	**1926.352(a)** When practical, objects to be welded, cut, or heated shall be moved to a designated safe location or, if the objects to be welded, cut, or heated cannot be readily moved, all movable fire hazards in the vicinity shall be taken to a safe place, or otherwise protected. **1926.352(b)** If the object to be welded, cut, or heated cannot be moved and if all the fire hazards cannot be removed, positive means shall be taken to confine the heat, sparks, and slag, and to protect the immovable fire hazards from them. **1926.352(c)** No welding, cutting, or heating shall be done where the application of flammable paints, or the presence of other flammable compounds, or heavy dust concentrations creates a hazard. **1926.352(d)** Suitable fire extinguishing equipment shall be immediately available in the work area and shall be maintained in a state of readiness for instant use. **1926.352(e)** When the welding, cutting, or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire while the actual welding, cutting, or heating operation is being performed, and for a sufficient period of time after completion of the work to ensure that no possibility of fire exists. Such personnel shall be instructed as to the specific anticipated fire hazards and how the firefighting equipment provided is to be used. **1926.352(f)** When welding, cutting, or heating is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions shall be taken on the opposite side as are taken on the side on which the welding is being performed. **1926.352(g)** For the elimination of possible fire in enclosed spaces as a result of gas escaping through leaking or improperly closed torch valves, the gas supply to the torch shall be positively shut off at some point outside the enclosed space whenever the torch is not to be used or whenever the torch is left unattended for a substantial period of time, such as during the lunch period. Overnight and at the change of shifts, the torch and hose shall be removed from the confined space. Open end fuel gas and oxygen hoses shall be immediately removed from enclosed spaces when they are disconnected from the torch or other gas-consuming device. **1926.352(h)** Except when the contents are being removed or transferred, drums, pails, and other containers which contain or have contained flammable liquids shall be kept closed. Empty containers shall be removed to a safe area apart from hot work operations or open flames. **1926.352(i)** Drums containers, or hollow structures which have contained toxic or flammable substances shall, before welding, cutting, or heating is undertaken on them, either be filled with water or thoroughly cleaned of such substances and ventilated and tested. For welding, cutting and heating on steel pipelines containing natural gas, the pertinent portions of regulations issued by the Department of Transportation, Office of Pipeline Safety, 49 CFR Part 192, Minimum Federal Safety Standards for Gas Pipelines, shall apply. **1926.352(j)** Before heat is applied to a drum, container, or hollow structure, a vent or opening shall be provided for the release of any built-up pressure during the application of heat.	Partial	Policy requires references OSHA 29 CFR 1926 subpart J. Policy states a requirement for fire watch, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.353 - Ventilation and protection in welding, cutting, and heating.	**1926.353(a)** Mechanical ventilation. For purposes of this section, mechanical ventilation shall meet the following requirements: **1926.353(a)(1)** Mechanical ventilation shall consist of either general mechanical ventilation systems or local exhaust systems. **1926.353(a)(2)** General mechanical ventilation shall be of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits, as defined in Subpart D of this part. **1926.353(a)(3)** Local exhaust ventilation shall consist of freely movable hoods intended to be placed by the welder or burner as close as practicable to the work. This system shall be of sufficient capacity and so arranged as to remove fumes and smoke at the source and keep the concentration of them in the breathing zone within safe limits as defined in Subpart D of this part. **1926.353(a)(4)** Contaminated air exhausted from a working space shall be discharged into the open air or otherwise clear of the source of intake air. **1926.353(a)(5)** All air replacing that withdrawn shall be clean and respirable. **1926.353(a)(6)** Oxygen shall not be used for ventilation purposes, comfort cooling, blowing dust from clothing, or for cleaning the work area. **1926.353(b)** Welding, cutting, and heating in confined spaces. **1926.353(b)(1)** Except as provided in paragraph (b)(2) of this section, and paragraph (c)(2) of this section, either general mechanical or local exhaust ventilation meeting the requirements of paragraph (a) of this section shall be provided whenever welding, cutting, or heating is performed in a confined space. **1926.353(b)(2)** When sufficient ventilation cannot be obtained without blocking the means of access, employees in the confined space shall be protected by air line respirators in accordance with the requirements of Subpart E of this part, and an employee on the outside of such a confined space shall be assigned to maintain communication with those working within it and to aid them in an emergency. **1926.353(b)(3)** "Lifelines." Where a welder must enter a confined space through a manhole or other small opening, means shall be provided for quickly removing him in case of emergency. When safety belts and lifelines are used for this purpose they shall be so attached to the welder's body that his body cannot be jammed in a small exit opening. An attendant with a pre-planned rescue procedure shall be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect. **1926.353(c)** Welding, cutting, or heating of metals of toxic significance. **1926.353(c)(1)** Welding, cutting, or heating in any enclosed spaces involving the metals specified in this subparagraph shall be performed with either general mechanical or local exhaust ventilation meeting the requirements of paragraph (a) of this section: **1926.353(c)(1)(i)** Zinc-bearing base or filler metals or metals coated with zinc-bearing materials; **1926.353(c)(1)(ii)** Lead base metals; **1926.353(c)(1)(iii)** Cadmium-bearing filler materials; **1926.353(c)(1)(iv)** Chromium-bearing metals or metals coated with chromium-bearing materials. **1926.353(c)(2)** Welding, cutting, or heating in any enclosed spaces involving the metals specified in this subparagraph shall be performed with local exhaust ventilation in accordance with the requirements of paragraph (a) of this section, or employees shall be protected by air line respirators in accordance with the requirements of Subpart E of this part: **1926.353(c)(2)(i)** Metals containing lead, other than as an impurity, or metals coated with lead-bearing materials; **1926.353(c)(2)(ii)** Cadmium-bearing or cadmium-coated base metals; **1926.353(c)(2)(iii)** Metals coated with mercury-bearing metals; **1926.353(c)(2)(iv)** Beryllium-containing base or filler metals. Because of its high toxicity, work involving beryllium shall be done with both local exhaust ventilation and air line respirators. **1926.353(c)(3)** Employees performing such operations in the open air shall be protected by filter-type respirators in accordance with the requirements of Subpart E of this part, except that employees performing such operations on beryllium-containing base or filler metals shall be protected by air line respirators in accordance with the requirements of Subpart E of this part. **1926.353(c)(4)** Other employees exposed to the same atmosphere as the welders or burners shall be protected in the same manner as the welder or,burner. **1926.353(d)** Inert-gas metal-arc welding. **1926.353(d)(1)** Since the inert-gas metal-arc welding process involves the production of ultra-violet radiation of intensities of 5 to 30 times that produced during shielded metal-arc welding, the decomposition of chlorinated solvents by ultraviolet rays, and the liberation of toxic fumes and gases, employees shall not be permitted to engage in, or be exposed to the process until the following special precautions have been taken: **1926.353(d)(1)(i)** The use of chlorinated solvents shall be kept at least 200 feet, unless shielded, from the exposed arc, and surfaces prepared with chlorinated solvents shall be thoroughly dry before welding is permitted on such surfaces. **1926.353(d)(1)(ii)** Employees in the area not protected from the arc by screening shall be protected by filter lenses meeting the requirements of Subpart E of this part. When two or more welders are exposed to each other's arc, filter lens goggles of a suitable type, meeting the requirements of Subpart E of this part, shall be worn under welding helmets. Hand shields to protect the welder against flashes and radiant energy shall be used when either the helmet is lifted or the shield is removed. **1926.353(d)(1)(iii)** Welders and other employees who are exposed to radiation shall be suitably protected so that the skin is covered completely to prevent burns and other damage by ultraviolet rays. Welding helmets and hand shields shall be free of leaks and openings, and free of highly reflective surfaces. **1926.353(d)(1)(iv)** When inert-gas metal-arc welding is being performed on stainless steel, the requirements of paragraph (c)(2) of this section shall be met to protect against dangerous concentrations of nitrogen dioxide. **1926.353(e)** General welding, cutting, and heating. **1926.353(e)(1)** Welding, cutting, and heating, not involving conditions or materials described in paragraph (b), (c), or (d) of this section, may normally be done without mechanical ventilation or respiratory protective equipment, but where, because of unusual physical or atmospheric conditions, an unsafe accumulation of contaminants exists, suitable mechanical ventilation or respiratory protective equipment shall be provided. **1926.353(e)(2)** Employees performing any type of welding, cutting, or heating shall be protected by suitable eye protective equipment in accordance with the requirements of Subpart E of this part.	Partial	Policy requires references OSHA 29 CFR 1926 subpart J. Policy states the need for ventilation, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.354 - Welding, cutting, and heating in way of preservative coatings.	**1926.354(a)** Before welding, cutting, or heating is commenced on any surface covered by a preservative coating whose flammability is not known, a test shall be made by a competent person to determine its flammability. Preservative coatings shall be considered to be highly flammable when scrapings burn with extreme rapidity. **1926.354(b)** Precautions shall be taken to prevent ignition of highly flammable hardened preservative coatings. When coatings are determined to be highly flammable, they shall be stripped from the area to be heated to prevent ignition. **1926.354(c)** Protection against toxic preservative coatings: **1926.354(c)(1)** In enclosed spaces, all surfaces covered with toxic preservatives shall be stripped of all toxic coatings for a distance of at least 4 inches from the area of heat application, or the employees shall be protected by air line respirators, meeting the requirements of Subpart E of this part. **1926.354(c)(2)** In the open air, employees shall be protected by a respirator, in accordance with requirements of Subpart E of this part. **1926.354(d)** The preservative coatings shall be removed a sufficient distance from the area to be heated to ensure that the temperature of the unstripped metal will not be appreciably raised. Artificial cooling of the metal surrounding the heating area may be used to limit the size of the area required to be cleaned.	Partial	Policy requires references OSHA 29 CFR 1926 subpart J. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
.0 Subpart S - ctrical									
	1910.301 - Introduction.	This subpart addresses electrical safety requirements that are necessary for the practical safeguarding of employees in their workplaces and is divided into four major divisions as follows: **1910.301(a)** Design safety standards for electrical systems. These regulations are contained in 1910.302 through 1910.330. Sections 1910.302 through 1910.308 contain design safety standards for electric utilization systems. Included in this category are all electric equipment and installations used to provide electric power and light for employee workplaces. Sections 1910.309 through 1910.330 are reserved for possible future design safety standards for other electrical systems. **1910.301(b)** Safety-related work practices. These regulations will be contained in 1910.331 through 1910.360. **1910.301(c)** Safety-related maintenance requirements. These regulations will be contained in 1910.361 through 1910.380. **1910.301(d)** Safety requirements for special equipment. These regulations will be contained in 1910.381 through 1910.398. **1910.301(e)** Definitions. Definitions applicable to each division are contained in 1910.399.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel . The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1910.302 - Electric utilization systems.	Sections 1910.302 through 1910.308 contain design safety standards for electric utilization systems. 1910.302(a) Scope – 1910.302(a)(1) Covered. The provisions of §§ 1910.302 through 1910.308 cover electrical installations and utilization equipment installed or used within or on buildings, structures, and other premises, including: 1910.302(a)(1)(i) Yards; 1910.302(a)(1)(ii) Carnivals; 1910.302(a)(1)(iii) Parking and other lots; 1910.302(a)(1)(iv) Mobile homes; 1910.302(a)(1)(v) Recreational vehicles; 1910.302(a)(1)(vi) Industrial substations; 1910.302(a)(1)(vii) Conductors that connect the installations to a supply of electricity; and 1910.302(a)(1)(viii) Other outside conductors on the premises. 1910.302(b)(2) Requirements applicable to installations made after March 15, 1972. Every electrical installation and all utilization equipment installed or overhauled after March 15, 1972, shall comply with the provisions of §§ 1910.302 through 1910.308, except as noted in paragraphs (b)(3) and (b)(4) of this section. 1910.302(c) Applicability of requirements for disconnecting means. The requirement in § 1910.147(c)(2)(iii) that energy isolating devices be capable of accepting a lockout device whenever replacement or major repair, renovation or modification of a machine or equipment is performed, and whenever new machines or equipment are installed after January 2, 1990, applies in addition to any requirements in § 1910.303 through § 1910.308 that disconnecting means be capable of being locked in the open position under certain conditions.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel . The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.303 - General.	**1910.303(b)(1)(vii)** Classification by type, size, voltage, current capacity, and specific use; and **1910.303(b)(1)(viii)** Other factors that contribute to the practical safeguarding of persons using or likely to come in contact with the equipment. **1910.303(b)(2)** Installation and use. Listed or labeled equipment shall be installed and used in accordance with any instructions included in the listing or labeling. **1910.303(b)(3)** Insulation integrity. Completed wiring installations shall be free from short circuits and from grounds other than those required or permitted by this subpart. **1910.303(b)(4)** Interrupting rating. Equipment intended to interrupt current at fault levels shall have an interrupting rating sufficient for the nominal circuit voltage and the current that is available at the line terminals of the equipment. Equipment intended to interrupt current at other than fault levels shall have an interrupting rating at nominal circuit voltage sufficient for the current that must be interrupted. **1910.303(b)(5)** Circuit impedance and other characteristics. The overcurrent protective devices, the total impedance, the component short-circuit current ratings, and other characteristics of the circuit to be protected shall be selected and coordinated to permit the circuit protective devices used to clear a fault to do so without the occurrence of extensive damage to the electrical components of the circuit. This fault shall be assumed to be either between two or more of the circuit conductors, or between any circuit conductor and the grounding conductor or enclosing metal raceway. **1910.303(b)(6)** Deteriorating agents. Unless identified for use in the operating environment, no conductors or equipment shall be located in damp or wet locations; where exposed to gases, fumes, vapors, liquids, or other agents that have a deteriorating effect on the conductors or equipment; or where exposed to excessive temperatures. **1910.303(b)(7)** Mechanical execution of work. Electric equipment shall be installed in a neat and workmanlike manner. **1910.303(b)(7)(i)** Unused openings in boxes, raceways, auxiliary gutters, cabinets, equipment cases, or housings shall be effectively closed to afford protection substantially equivalent to the wall of the equipment. **1910.303(b)(7)(ii)** Conductors shall be racked to provide ready and safe access in underground and subsurface enclosures that persons enter for installation and maintenance. **1910.303(b)(7)(iii)** Internal parts of electrical equipment, including busbars, wiring terminals, insulators, and other surfaces, may not be damaged or contaminated by foreign materials such as paint, plaster, cleaners, abrasives, or corrosive residues. **1910.303(b)(7)(iv)** There shall be no damaged parts that may adversely affect safe operation or mechanical strength of the equipment, such as parts that are broken, bent, cut, or deteriorated by corrosion, chemical action, or overheating. **1910.303(b)(8)** Mounting and cooling of equipment. **1910.303(b)(8)(i)** Electric equipment shall be firmly secured to the surface on which it is mounted. Note to paragraph (b)(8)(i) of this section: Wooden plugs driven into holes in masonry, concrete, plaster, or similar materials are not considered secure means of fastening electric equipment. 1910.303(b)(8)(ii) Electric equipment that depends on the natural circulation of air and convection principles for cooling of exposed surfaces shall be installed so that room airflow over such surfaces is not prevented by walls or by adjacent installed equipment. For equipment designed for floor mounting, clearance between top surfaces and adjacent surfaces shall be provided to dissipate rising warm air. **1910.303(b)(8)(iii)** Electric equipment provided with ventilating openings shall be installed so that walls or other obstructions do not prevent the free circulation of air through the equipment.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel . The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.305 - Wiring methods, components, and equipment for general use.	**1910.305(a)** Wiring methods. The provisions of this section do not apply to conductors that are an integral part of factory-assembled equipment.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel . The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.331 - Scope	**1910.331(a)** *Covered work by both qualified and unqualified persons* . The provisions of §§1910.331 through 1910.335 cover electrical safety-related work practices for both qualified persons (those who have training in avoiding the electrical hazards of working on or near exposed energized parts) and unqualified persons (those with little or no such training) working on, near, or with the following installations: **1910.331(a)(1)** *Premises wiring* . Installations of electric conductors and equipment within or on buildings or other structures, and on other premises such as yards, carnival, parking, and other lots, and industrial substations; **1910.331(a)(2)** *Wiring for connection to supply* . Installations of conductors that connect to the supply of electricity; and **1910.331(a)(3)** *Other wiring* . Installations of other outside conductors on the premises. **1910.331(a)(4)** *Optical fiber cable* . Installations of optical fiber cable where such installations are made along with electric conductors. Note: See §1910.399 for the definition of "qualified person." See §1910.332 for training requirements that apply to qualified and unqualified persons. **1910.331(b)** *Other covered work* . The provisions of §§ 1910.331 through 1910.335 also cover: **1910.331(b)(1)** Work performed by unqualified persons on, near, or with the installations listed in paragraphs (c)(1) through (4) of this section; and **1910.331(b)(2)** Work performed by qualified persons near the installations listed in paragraphs (c)(1) through (c)(4) of this section when that work is not on or directly associated with those installations. **1910.331(c)** *Excluded work by qualified persons* . The provisions of §§1910.331 through 1910.335 do not apply to work performed by qualified persons on or directly associated with the following installations: **1910.331(c)(1)** *Generation, transmission, and distribution installations* . Installations for the generation, control, transformation, transmission, and distribution of electric energy (including communication and metering) located in buildings used for such purposes or located outdoors. **Note 1 to paragraph (c)(1):** Work on or directly associated with installations of utilization equipment used for purposes other than generating, transmitting, or distributing electric energy (such as installations which are in office buildings, warehouses, garages, machine shops, or recreational buildings, or other utilization installations which are not an integral part of a generating installation, substation, or control center) is covered under paragraph (a)(1) of this section. **Note 2 to paragraph (c)(1):** For work on or directly associated with utilization installations, an employer who complies with the work practices of §1910.269 (electric power generation, transmission, and distribution) will be deemed to be in compliance with §1910.333(c) and §1910.335. However, the requirements of §1910.332, §1910.333(a), §1910.333(b), and §1910.334 apply to all work on or directly associated with utilization installations, regardless of whether the work is performed by qualified or unqualified persons. **Note 3 to paragraph (c)(1):** Work on or directly associated with generation, transmission, or distribution installations includes: (1) Work performed directly on such installations, such as repairing overhead or underground distribution lines or repairing a feed-water pump for the boiler in a generating plant. (2) Work directly associated with such installations, such as line-clearance tree trimming and replacing utility poles, when that work is covered by § 1910.269 (see § 1910.269(a)(1)(i)(D) and (E) and the definition of "line-clearance tree trimming" in § 1910.269(x)). (3) Work on electric utilization circuits in a generating plant provided that: (A) Such circuits are commingled with installations of power generation equipment or circuits, and (B) The generation equipment or circuits present greater electrical hazards than those posed by the utilization equipment or circuits (such as exposure to higher voltages or lack of overcurrent protection). This work is covered by § 1910.269. **1910.331(c)(2)** *Communications installations* . Installations of communication equipment to the extent that the work is covered under §1910.268. **1910.331(c)(3)** *Installations in vehicles* . Installations in ships, watercraft, railway rolling stock, aircraft, or automotive vehicles other than mobile homes and recreational vehicles. **1910.331(c)(4)** *Railway installations* . Installations of railways for generation, transformation, transmission, or distribution of power used exclusively for operation of rolling stock or installations of railways used exclusively for signaling and communication purposes.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel . The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.332 - Training		Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel . The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X	X	X		
	1910.333 - Selection and use of work practices		Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel . The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1910.334 - Use of equipment.	**1910.334(a)** *Portable electric equipment* . This paragraph applies to the use of cord and plug connected equipment, including flexible cord sets (extension cords). **1910.334(a)(1)** *Handling* . Portable equipment shall be handled in a manner which will not cause damage. Flexible electric cords connected to equipment may not be used for raising or lowering the equipment. Flexible cords may not be fastened with staples or otherwise hung in such a fashion as could damage the outer jacket or insulation. **1910.334(a)(2)** *Visual inspection* . **1910.334(a)(2)(i)** Portable cord and plug connected equipment and flexible cord sets (extension cords) shall be visually inspected before use on any shift for external defects (such as loose parts, deformed and missing pins, or damage to outer jacket or insulation) and for evidence of possible internal damage (such as pinched or crushed outer jacket). Cord and plug connected equipment and flexible cord sets (extension cords) which remain connected once they are put in place and are not exposed to damage need not be visually inspected until they are relocated. **1910.334(a)(2)(ii)** If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service, and no employee may use it until repairs and tests necessary to render the equipment safe have been made. **1910.334(a)(2)(iii)** When an attachment plug is to be connected to a receptacle (including an on a cord set), the relationship of the plug and receptacle contacts shall first be checked to ensure that they are of proper mating configurations. **1910.334(a)(3)** *Grounding type equipment* . **1910.334(a)(3)(i)** A flexible cord used with grounding type equipment shall contain an equipment grounding conductor. **1910.334(a)(3)(ii)** Attachment plugs and receptacles may not be connected or altered in a manner which would prevent proper continuity of the equipment grounding conductor at the point where plugs are attached to receptacles. Additionally, these devices may not be altered to allow the grounding pole of a plug to be inserted into slots intended for connection to the current-carrying conductors. **1910.334(a)(3)(iii)** Adapters which interrupt the continuity of the equipment grounding connection may not be used. **1910.334(a)(4)** *Conductive work locations* . Portable electric equipment and flexible cords used in highly conductive work locations (such a those inundated with water or other conductive liquids), or in job locations where employees are likely to contact water or conductive liquids, shall be approved for those locations. **1910.334(a)(5)** *Connecting attachment plugs* . **1910.334(a)(5)(i)** Employees' hands may not be wet when plugging and unplugging flexible cords and cord and plug connected equipment, if energized equipment is involved. **1910.334(a)(5)(ii)** Energized plug and receptacle connections may be handled only with insulating protective equipment if the condition of the connection could provide a conducting path to the employee's hand (if, for example, a cord connector is wet from being immersed in water). **1910.334(a)(5)(iii)** Locking type connectors shall be properly secured after connection. **1910.334(b)** *Electric power and lighting circuits* . **1910.334(b)(1)** *Routine opening and closing of circuits* . Load rated switches, circuit breakers, or other devices specifically designed as disconnecting means shall be used for the opening, reversing, or closing of circuits under load conditions. Cable connectors not of the load break type, fuses, terminal lugs, and cable splice connections may not be used for such purposes, except in an emergency. **1910.334(b)(2)** *Reclosing circuits after protective device operation* . After a circuit is deenergized by a circuit protective device, the circuit may not be manually reenergized until it has been determined that the equipment and circuit can be safely energized. The repetitive manual reclosing of circuit breakers or reenergizing circuits through replaced fuses is prohibited. Note: When it can be determined from the design of the circuit and the overcurrent devices involved that the automatic operation of a device was caused by an overload rather than a fault condition, no examination of the circuit or connected equipment is needed before the circuit is reenergized. **1910.334(b)(3)** *Overcurrent protection modification* . Overcurrent protection of circuits and conductors may not be modified, even on a temporary basis, beyond that allowed by 1910.304(e), the installation safety requirements for overcurrent protection. **1910.334(c)** *Test instruments and equipment* . **1910.334(c)(1)** *Use* . Only qualified persons may perform testing work on electric circuits or equipment. **1910.334(c)(2)** *Visual inspection* . Test instruments and equipment and all associated test leads, cables, power cords, probes, and connectors shall be visually inspected for external defects and damage before the equipment is used. If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service, and no employee may use it until repairs and tests necessary to render the equipment safe have been made. **1910.334(c)(3)** *Rating of equipment* . Test instruments and equipment and their accessories shall be rated for the circuits and equipment to which they will be connected and shall be designed for the environment in which they will be used. **1910.334(d)** *Occasional use of flammable or ignitable materials* . Where flammable materials are present only occasionally, electric equipment capable of igniting them shall not be used, unless measures are taken to prevent hazardous conditions from developing. Such materials include, but are not limited to: flammable gases, vapors, or liquids; combustible dust; and ignitable fibers or flings. Note: Electrical installation requirements for locations where flammable materials are present on a regular basis are contained in 1910.307.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel . The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1910.335 - Safeguards for personnel protection.	**1910.335(a)** Use of protective equipment. **1910.335(a)(1)** Personal protective equipment. **1910.335(a)(1)(i)** Employees working in areas where there are potential electrical hazards shall be provided with, and shall use, electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed. Note: Personal protective equipment requirements are contained in subpart I of this part. **1910.335(a)(1)(ii)** Protective equipment shall be maintained in a safe, reliable condition and shall be periodically inspected or tested, as required by 1910.137. **1910.335(a)(1)(iii)** If the insulating capability of protective equipment may be subject to damage during use, the insulating material shall be protected. (For example, an outer covering of leather is sometimes used for the protection of rubber insulating material.) **1910.335(a)(1)(iv)** Employees shall wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with exposed energized parts. **1910.335(a)(1)(v)** Employees shall wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from electrical explosion. **1910.335(a)(2)** General protective equipment and tools. **1910.335(a)(2)(i)** When working near exposed energized conductors or circuit parts, each employee shall use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts. If the insulating capability of insulated tools or handling equipment is subject to damage, the insulating material shall be protected. **1910.335(a)(2)(i)(A)** Fuse handling equipment, insulated for the circuit voltage, shall be used to remove or install fuses when the fuse terminals are energized. **1910.335(a)(2)(i)(B)** Ropes and handlines used near exposed energized parts shall be nonconductive. **1910.335(a)(2)(ii)** Protective shields, protective barriers, or insulating materials shall be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts which might be accidentally contacted or where dangerous electric heating or arcing might occur. When normally enclosed live parts are exposed for maintenance or repair, they shall be guarded to protect unqualified persons from contact with the live parts. **1910.335(b)** Alerting techniques. The following alerting techniques shall be used to warn and protect employees from hazards which could cause injury due to electric shock, burns, or failure of electric equipment parts: **1910.335(b)(1)** Safety signs and tags. Safety signs, safety symbols, or accident prevention tags shall be used where necessary to warn employees about electrical hazards which may endanger them, as required by 1910.145. **1910.335(b)(2)** Barricades. Barricades shall be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas exposing employees to uninsulated energized conductors or circuit parts. Conductive barricades may not be used where they might cause an electrical contact hazard. **1910.335(b)(3)** Attendants. If signs and barricades do not provide sufficient warning and protection from electrical hazards, an attendant shall be stationed to warn and protect employees.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel . The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
6 Subpart K - ctrical									
	1926.400 - Introduction.	This subpart addresses electrical safety requirements that are necessary for the practical safeguarding of employees involved in construction work and is divided into four major divisions and applicable definitions as follows: **1926.400(a)** Installation safety requirements. Installation safety requirements are contained in 1926.402 through 1926.408. Included in this category are electric equipment and installations used to provide electric power and light on jobsites. **1926.400(b)** Safety-related work practices. Safety-related work practices are contained in 1926.416 and 1926.417. In addition to covering the hazards arising from the use of electricity at jobsites, these regulations also cover the hazards arising from the accidental contact, direct or indirect, by employees with all energized lines, above or below ground, passing through or near the jobsite. **1926.400(c)** Safety-related maintenance and environmental considerations. Safety-related maintenance and environmental considerations are contained in 1926.431 and 1926.432. **1926.400(d)** Safety requirements for special equipment. Safety requirements for special equipment are contained in 1926.441. **1926.400(e)** Definitions. Definitions applicable to this Subpart are contained in 1926.449.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.402 - Applicability.	**1926.402(a)** Covered. Sections 1926.402 through 1926.408 contain installation safety requirements for electrical equipment and installations used to provide electric power and light at the jobsite. These sections apply to installations, both temporary and permanent, used on the jobsite; but these sections do not apply to existing permanent installations that were in place before the construction activity commenced. NOTE: If the electrical installation is made in accordance with the National Electrical Code ANSI/NFPA 70-1984, exclusive of Formal Interpretations and Tentative Interim Amendments, it will be deemed to be in compliance with 1926.403 through 1926.408, except for 1926.404(b)(1) and 1926.405(a)(2)(ii)(E), (F), (G), and (J). **1926.402(b)** Not covered. Sections 1926.402 through 1926.408 do not cover installations used for the generation, transmission, and distribution of electric energy, including related communication, metering, control, and transformation installations. (However, these regulations do cover portable and vehicle-mounted generators used to provide power for equipment used at the jobsite.) See Subpart V of this Part for the construction of power distribution and transmission lines	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.403 - General requirements.		Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.404 - Wiring design and protection.		Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.405 - Wiring methods, components, and equipment for general use.		Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.406 - Specific purpose equipment and installations.	**1926.406(a)** Cranes and hoists. This paragraph applies to the installation of electric equipment and wiring used in connection with cranes, monorail hoists, hoists, and all runways. **1926.406(a)(1)** Disconnecting means - **1926.406(a)(1)(i)** Runway conductor disconnecting means. A readily accessible disconnecting means shall be provided between the runway contact conductors and the power supply. **1926.406(a)(1)(ii)** Disconnecting means for cranes and monorail hoists. A disconnecting means, capable of being locked in the open position, shall be provided in the leads from the runway contact conductors or other power supply on any crane or monorail hoist. **1926.406(a)(1)(ii)(A)** If this additional disconnecting means is not readily accessible from the crane or monorail hoist operating station, means shall be provided at the operating station to open the power circuit to all motors of the crane or monorail hoist. **1926.406(a)(1)(ii)(B)** The additional disconnect may be omitted if a monorail hoist or hand-propelled crane bridge installation meets all of the following: **1926.406(a)(1)(ii)(B)(1)** The unit is floor controlled; **1926.406(a)(1)(ii)(B)(2)** The unit is within view of the power supply disconnecting means; and **1926.406(a)(1)(ii)(B)(3)** No fixed work platform has been provided for servicing the unit. **1926.406(a)(2)** Control. A limit switch or other device shall be provided to prevent the load block from passing the safe upper limit of travel of any hoisting mechanism. **1926.406(a)(3)** Clearance..The dimension of the working space in the direction of access to live parts which may require examination, adjustment, servicing, or maintenance while alive shall be a minimum of 2 feet 6 inches (762 mm). Where controls are enclosed in cabinets, the door(s) shall open at least 90 degrees or be removable, or the installation shall provide equivalent access. **1926.406(a)(4)** Grounding. All exposed metal parts of cranes, monorail hoists, hoists and accessories including pendant controls shall be metallically joined together into a continuous electrical conductor so that the entire crane or hoist will be grounded in accordance with **1926.404(f)**. Moving parts, other than removable accessories or attachments, having metal-to-metal bearing surfaces shall be considered to be electrically connected to each other through the bearing surfaces for grounding purposes. The trolley frame and bridge frame shall be considered as electrically grounded through the bridge and trolley wheels and its respective tracks unless conditions such as paint or other insulating materials prevent reliable metal-to-metal contact. In this case a separate bonding conductor shall be provided. **1926.406(b)** Elevators, escalators, and moving walks - **1926.406(b)(1)** Disconnecting means. Elevators, escalators, and moving walks shall have a single means for disconnecting all ungrounded main power supply conductors for each unit. **1926.406(b)(2)** Control panels. If control panels are not located in the same space as the drive machine, they shall be located in cabinets with doors or panels capable of being locked closed. **1926.406(c)** Electric welders-disconnecting means - **1926.406(c)(1)** Motor-generator, AC transformer, and DC rectifier arc welders. A disconnecting means shall be provided in the supply circuit for each motor-generator arc welder, and for each AC transformer and DC rectifier arc welder which is not equipped with a disconnect mounted as an integral part of the welder. **1926.406(c)(2)** Resistance welders. A switch or circuit breaker shall be provided by which each resistance welder and its control equipment can be isolated from the supply circuit. The ampere rating of this disconnecting means shall not be less than the supply conductor ampacity.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.416 - General requirements.	**1926.416(a)** Protection of employees - **1926.416(a)(1)** No employer shall permit an employee to work in such proximity to any part of an electric power circuit that the employee could contact the electric power circuit in the course of work, unless the employee is protected against electric shock by deenergizing the circuit and grounding it or by guarding it effectively by insulation or other means. **1926.416(a)(2)** In work areas where the exact location of underground electric powerlines is unknown, employees using jack-hammers, bars, or other hand tools which may contact a line shall be provided with insulated protective gloves. **1926.416(a)(3)** Before work is begun the employer shall ascertain by inquiry or direct observation, or by instruments, whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electric power circuit. The employer shall post and maintain proper warning signs where such a circuit exists. The employer shall advise employees of the location of such lines, the hazards involved, and the protective measures to be taken. **1926.416(b)** Passageways and open spaces - **1926.416(b)(1)** Barriers or other means of guarding shall be provided to ensure that workspace for electrical equipment will not be used as a passageway during periods when energized parts of electrical equipment are exposed. **1926.416(b)(2)** Working spaces, walkways, and similar locations shall be kept clear of cords so as not to create a hazard to employees. **1926.416(c)** Load ratings. In existing installations, no changes in circuit protection shall be made to increase the load in excess of the load rating of the circuit wiring. **1926.416(d)** Fuses. When fuses are installed or removed with one or both terminals energized, special tools insulated for the voltage shall be used. **1926.416(e)** Cords and cables. **1926.416(e)(1)** Worn or frayed electric cords or cables shall not be used. **1926.416(e)(2)** Extension cords shall not be fastened with staples, hung from nails, or suspended by wire.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.417 - Lockout and tagging of circuits.	**1926.417(a)** Controls. Controls that are to be deactivated during the course of work on energized or deenergized equipment or circuits shall be tagged. **1926.417(b)** Equipment and circuits. Equipment or circuits that are deenergized shall be rendered inoperative and shall have tags attached at all points where such equipment or circuits can be energized. **1926.417(c)** Tags. Tags shall be placed to identify plainly the equipment or circuits being worked on.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.431 - Maintenance of equipment.	The employer shall ensure that all wiring components and utilization equipment in hazardous locations are maintained in a dust-tight, dust-ignition-proof, or explosion-proof condition, as appropriate. There shall be no loose or missing screws, gaskets, threaded connections, seals, or other impairments to a tight condition.	Partial	Policy states that ONLY licensed electricians are allowed to work on energized equipment. Subsection covers common situations that may be encountered by general site personnel. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1926.432 - Environmental deterioration of equipment.	**1926.432(a)** Deteriorating agents - **1926.432(a)(1)** Unless identified for use in the operating environment, no conductors or equipment shall be located: **1926.432(a)(1)(i)** In damp or wet locations; **1926.432(a)(1)(ii)** Where exposed to gases, fumes, vapors, liquids, or other agents having a deteriorating effect on the conductors or equipment; or **1926.432(a)(1)(iii)** Where exposed to excessive temperatures. **1926.432(a)(2)** Control equipment, utilization equipment, and busways approved for use in dry locations only shall be protected against damage from the weather during building construction. **1926.432(b)** Protection against corrosion. Metal raceways, cable armor, boxes, cable sheathing, cabinets, elbows, couplings, fittings, supports, and support hardware shall be of materials appropriate for the environment in which they are to be installed.	Partial	Policy covers common situations that may be encountered by general site personnel. The policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
.0 Subpart Z - Toxic l Hazardous ıstances									
	1910.1000 - Air contaminants.	An employee's exposure to any substance listed in Tables Z-1, Z-2, or Z-3 of this section shall be limited in accordance with the requirements of the following paragraphs of this section.	No	With the respiratory program currently in abeyance, there is no governing policy/SOP.	X				
	1910.1000 TABLE Z-1 - TABLE Z-1 Limits for Air Contaminants.		No	With the respiratory program currently in abeyance, there is no governing policy/SOP.	X				
	1910.1000 TABLE Z-2 - TABLE Z-2		No	With the respiratory program currently in abeyance, there is no governing policy/SOP.	X				
	1910.1000 TABLE Z-3 - TABLE Z-3 Mineral Dusts		No	With the respiratory program currently in abeyance, there is no governing policy/SOP.	X				
	1910.1001 - Asbestos.	**1910.1001(a)(1)** This section applies to all occupational exposures to asbestos in all industries covered by the Occupational Safety and Health Act, except as provided in paragraph (a)(2) and (3) of this section. **1910.1001(a)(2)** This section does not apply to construction work as defined in 29 CFR 1910.12(b). (Exposure to asbestos in construction work is covered by 29 CFR 1926.1101.)	No	With the respiratory program currently in abeyance, there is no governing policy/SOP.	X				
	1910.1001 App A - OSHA Reference Method - Mandatory		No	With the respiratory program currently in abeyance, there is no governing policy/SOP.	X				
	1910.1020 - Access to employee exposure and medical records.	**1910.1020(a)** "Purpose." The purpose of this section is to provide employees and their designated representatives a right of access to relevant exposure and medical records; and to provide representatives of the Assistant Secretary a right of access to these records in order to fulfill responsibilities under the Occupational Safety and Health Act. Access by employees, their representatives, and the Assistant Secretary is necessary to yield both direct and indirect improvements in the detection, treatment, and prevention of occupational disease. Each employer is responsible for assuring compliance with this section, but the activities involved in complying with the access to medical records provisions can be carried out, on behalf of the employer, by the physician or other health care personnel in charge of employee medical records. Except as expressly provided, nothing in this section is intended to affect existing legal and ethical obligations concerning the maintenance and confidentiality of employee medical information, the duty to disclose information to a patient/employee or any other aspect of the medical-care relationship, or affect existing legal obligations concerning the protection of trade secret information.	No	No governing policy/SOP found.	X				
	1910.1020 App A - Sample authorization letter for the release of employee medical record information to a designated representative (Non-mandatory)		No	No governing policy/SOP found.	X				
	1910.1030 - Bloodborne pathogens.	*Scope and Application* . This section applies to all occupational exposure to blood or other potentially infectious materials as defined by paragraph (b) of this section.	Partial	Policy requires the use of Universal Precautions when exposed to bloodborne pathogens, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including needlestick/sharps injuries and recordkeeping of incidents.	X				
	1910.1030 App A - Hepatitis B Vaccine Declination (Mandatory)	I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.	Partial	Policy requires the use of Universal Precautions when exposed to bloodborne pathogens, however policy is too brief/high-level and is silent on many individual provisions of the regulation, including Hepatitis B Vaccine availability.	X				
	1910.1200 - Hazard Communication.	**1910.1200(a)(1)** The purpose of this section is to ensure that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to employers and employees. The requirements of this section are intended to be consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision 3. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, safety data sheets and employee training. **1910.1200(a)(2)** This occupational safety and health standard is intended to address comprehensively the issue of classifying the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, and to preempt any legislative or regulatory enactments of a state, or political subdivision of a state, pertaining to this subject. Classifying the potential hazards of chemicals and communicating information concerning hazards and appropriate protective measures to employees, may include, for example, but is not limited to, provisions for: developing and maintaining a written hazard communication program for the workplace, including lists of hazardous chemicals present; labeling of containers of chemicals in the workplace, as well as of containers of chemicals being shipped to other workplaces; preparation and distribution of safety data sheets to employees and downstream employers; and development and implementation of employee training programs regarding hazards of chemicals and protective measures. Under section 18 of the Act, no state or political subdivision of a state may adopt or enforce any requirement relating to the issue addressed by this Federal standard, except pursuant to a Federally-approved state plan. 1910.1200(e) Written hazard communication program. 1910.1200(e)(1) Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, safety data sheets, and employee information and training will be met, and which also includes the following: 1910.1200(e)(1)(i) A list of the hazardous chemicals known to be present using a product identifier that is referenced on the appropriate safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and, 1910.1200(e)(1)(ii) The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.	Partial	Policies discuss hazard communication and hazardous material exposure prevention, however policy is too brief/high-level and is silent on some individual provisions of the regulation including a written training program documentation and recordkeeping.	X	X			
	1910.1201 - Retention of DOT markings, placards and labels.	**1910.1201(a)** Any employer who receives a package of hazardous material which is required to be marked, labeled or placarded in accordance with the U. S. Department of Transportation's Hazardous Materials Regulations (49 CFR Parts 171 through 180) shall retain those markings, labels and placards on the package until the packaging is sufficiently cleaned of residue and purged of vapors to remove any potential hazards. **1910.1201(b)** Any employer who receives a freight container, rail freight car, motor vehicle, or transport vehicle that is required to be marked or placarded in accordance with the Hazardous Materials Regulations shall retain those markings and placards on the freight container, rail freight car, motor vehicle or transport vehicle until the hazardous materials which require the marking or placarding are sufficiently removed to prevent any potential hazards. **1910.1201(c)** Markings, placards and labels shall be maintained in a manner that ensures that they are readily visible. **1910.1201(d)** For non-bulk packages which will not be reshipped, the provisions of this section are met if a label or other acceptable marking is affixed in accordance with the Hazard Communication Standard (29 CFR 1910.1200). **1910.1201(e)** For the purposes of this section, the term "hazardous material" and any other terms not defined in this section have the same definition as in the Hazardous Materials Regulations (49 CFR Parts 171 through 180).	No	Policies discuss hazard communication and hazardous material exposure prevention, however policy is too brief/high-level and is silent on some individual provisions of the regulation including specific requirements for retention of DOT marking, placards, and labels.	X	X			
:6 Subpart N - icopters, Hoists, vators, and veyors									
	1926.555 - Conveyors.	**1926.555(a)** General requirements. **1926.555(a)(1)** Means for stopping the motor or engine shall be provided at the operator's station. Conveyor systems shall be equipped with an audible warning signal to be sounded immediately before starting up the conveyor. **1926.555(a)(2)** If the operator's station is at a remote point, similar provisions for stopping the motor or engine shall be provided at the motor or engine location. **1926.555(a)(3)** Emergency stop switches shall be arranged so that the conveyor cannot be started again until the actuating stop switch has been reset to running or "on" position. **1926.555(a)(4)** Screw conveyors shall be guarded to prevent employee contact with turning flights. **1926.555(a)(5)** Where a conveyor passes over work areas, aisles, or thoroughfares, suitable guards shall be provided to protect employees required to work below the conveyors. **1926.555(a)(6)** All crossovers, aisles, and passageways shall be conspicuously marked by suitable signs, as required by Subpart G of this part. **1926.555(a)(7)** Conveyors shall be locked out or otherwise rendered inoperable, and tagged out with a "Do Not Operate" tag during repairs and when operation is hazardous to employees performing maintenance work. **1926.555(a)(8)** All conveyors in use shall meet the applicable requirements for design, construction, inspection, testing, maintenance, and operation, as prescribed in the ANSI B20.1-1957, Safety Code for Conveyors, Cableways, and Related Equipment.	Partial	Policy requires machine guarding to be in place, however the policy is too brief/high-level and is silent on many individual provisions of the regulation including specific requirements including means for stopping conveyor in an emergency.	X				
:6 Subpart O - Motor ıicles, Mechanized ipment, and Marine erations									

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1926.600 - Equipment.	**1926.600(a)** *General Requirements* . **1926.600(a)(1)** All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment. **1926.600(a)(2)** A safety tire rack, cage, or equivalent protection shall be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings or similar devices. **1926.600(a)(3)(i)** Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks shall be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them. Bulldozer and scraper blades, end-loader buckets, dump bodies, and similar equipment, shall be either fully lowered or blocked when being repaired or when not in use. All controls shall be in a neutral position, with the motors stopped and brakes set, unless work being performed requires otherwise. **1926.600(a)(3)(ii)** Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines shall have the wheels chocked and the parking brake set. **1926.600(a)(4)** The use, care and charging of all batteries shall conform to the requirements of Subpart K of this part. **1926.600(a)(5)** All cab glass shall be safety glass, or equivalent, that introduces no visible distortion affecting the safe operation of any machine covered by this subpart. **1926.600(a)(6)** All equipment covered by this subpart shall comply with the following requirements when working or being moved in the vicinity of power lines or energized transmitters, except where electrical distribution and transmission lines have been deenergized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines: **1926.600(a)(6)(i)** For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet; **1926.600(a)(6)(ii)** For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for each 1 kV over 50 kV, or twice the length of the line insulator, but never less than 10 feet; **1926.600(a)(6)(iii)** In transit with no load and boom lowered, the equipment clearance shall be a minimum of 4 feet for voltages less than 50 kV, and 10 feet for voltages over 50 kV, up to and including 345 kV, and 16 feet for voltages up to and including 750 kV; **1926.600[a](6)(iv)** A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means; **1926.600(a)(6)(v)** Cage-type boom guards, insulating links, or proximity warning devices may be used on cranes, but the use of such devices shall not alter the requirements of any other regulation of this part even if such device is required by law or regulation; **1926.600(a)(6)(vi)** Any overhead wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded; **1926.600(a)(6)(vii)** Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter shall be de-energized or tests shall be made to determine if electrical charge is induced on the crane. The following precautions shall be taken when necessary to dissipate induced voltages: **1926.600(a)(6)(vii)(A)** The equipment shall be provided with an electrical ground directly to the upper rotating structure supporting the boom; and **1926.600(a)(6)(vii)(B)** Ground jumper cables shall be attached to materials being handled by boom equipment when electrical charge is induced while working near energized transmitters. Crews shall be provided with nonconductive poles having large alligator clips or other similar protection to attach the ground cable to the load. **1926.600(a)(6)(vii)(C)** Combustible and flammable materials shall be removed from the immediate area prior to operations. **1926.600(a)(7)** *Rolling railroad cars* . Derail and/or bumper blocks shall be provided on spur railroad tracks where a rolling car could contact other cars being worked, enter a building, work or traffic area.	Partial	Policies reference mobile equipment use policies, however the policies are too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.602 - Material handling equipment.	**1926.602(a)** Earthmoving equipment; General. **1926.602(a)(1)** These rules apply to the following types of earthmoving equipment: scrapers, loaders, crawler or wheel tractors, bulldozers, off-highway trucks, graders, agricultural and industrial tractors, and similar equipment. The promulgation of specific rules for compactors and rubber-tired "skid-steer" equipment is reserved pending consideration of standards currently being developed. **1926.602(a)(2)** Seat belts. **1926.602(a)(2)(i)** Seat belts shall be provided on all equipment covered by this section and shall meet the requirements of the Society of Automotive Engineers, J386-1969, Seat Belts for Construction Equipment. Seat belts for agricultural and light industrial tractors shall meet the seat belt requirements of Society of Automotive Engineers J333a-1970, Operator Protection for Agricultural and Light Industrial Tractors. **1926.602(a)(2)(ii)** Seat belts need not be provided for equipment which is designed only for standup operation. **1926.602(a)(2)(iii)** Seat belts need not be provided for equipment which does not have roll-over protective structure (ROPS) or adequate canopy protection. **1926.602(a)(3)** Access roadways and grades.**1926.602(a)(3)(i)** No employer shall move or cause to be moved construction equipment or vehicles upon any access roadway or grade unless the access roadway or grade is constructed and maintained to accommodate safely the movement of the equipment and vehicles involved. **1926.602(a)(3)(ii)** Every emergency access ramp and berm used by an employer shall be constructed to restrain and control runaway vehicles. **1926.602(a)(4)** Brakes. All earthmoving equipment mentioned in this 1926.602(a) shall have a service braking system capable of stopping and holding the equipment fully loaded, as specified in Society of Automotive Engineers SAE-J237, Loader Dozer-1971, J236, Graders-1971, and J319b, Scrapers-1971. Brake systems for self-propelled rubber-tired off-highway equipment manufactured after January 1, 1972 shall meet the applicable minimum performance criteria set forth in the following Society of Automotive Engineers Recommended Practices:**1926.602(a)(5)** Fenders. Pneumatic-tired earth-moving haulage equipment (trucks, scrapers, tractors, and trailing units) whose maximum speed exceeds 15 miles per hour, shall be equipped with fenders on all wheels to meet the requirements of Society of Automotive Engineers SAE J321a-1970, Fenders for Pneumatic-Tired Earthmoving Haulage Equipment. An employer may, of course, at any time seek to show under 1926.2, that the uncovered wheels present no hazard to personnel from flying materials. **1926.602(a)(6)** Rollover protective structures (ROPS). See Subpart W of this part for requirements for rollover protective structures and overhead protection. **1926.602(a)(7)** Rollover protective structures for off-highway trucks. The promulgation of standards for rollover protective structures for off-highway trucks is reserved pending further study and development. **1926.602(a)(8)** Specific effective dates-brakes and fenders. **1926.602(a)(8)(i)** Equipment mentioned in paragraph (a)(4) and (5) of this section, and manufactured after January 1, 1972, which is used by any employer after that date, shall comply with the applicable rules prescribed therein concerning brakes and fenders. Equipment mentioned in paragraphs (a) (4) and (5) of this section, and manufactured before January 1, 1972, which is used by any employer after that date, shall meet the applicable rules prescribed herein not later than June 30, 1973. It should be noted that, as permitted under 1926.2, employers may request variations from the applicable brakes and fender standards required by this subpart. Employers wishing to seek variations from the applicable brakes and fenders rules may submit any requests for variations after the publication of this document in the Federal Register. Any statements intending to meet the requirements of 1926.2(b)(4), should specify how the variation would protect the safety of the employees by providing for any compensating restrictions on the operation of equipment. **1926.602(a)(8)(ii)** Notwithstanding the provisions of paragraphs (a)(5) and (a)(8)(i) of this section, the requirement that fenders be installed on pneumatic-tired earthmoving haulage equipment, is suspended pending reconsideration of the requirement. **1926.602(a)(9)** Audible alarms. **1926.602(a)(9)(i)** All bidirectional machines, such as rollers, compacters, front-end loaders, bulldozers, and similar equipment, shall be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction. The horn shall be maintained in an operative condition. **1926.602(a)(9)(ii)** No employer shall permit earthmoving or compacting equipment which has an obstructed view to the rear to be used in reverse gear unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or an employee signals that it is safe to do so. **1926.602(a)(10)** Scissor points. Scissor points on all front-end loaders, which constitute a hazard to the operator during normal operation, shall be guarded. **1926.602(b)** Excavating and other equipment. **1926.602(b)(1)** Tractors covered in paragraph (a) of this section shall have seat belts as required for the operators when seated in the normal seating arrangement for tractor operation, even though back-hoes, breakers, or other similar attachments are used on these machines for excavating or other work. **1926.602(b)(2)** For the purposes of this subpart and of Subpart N of this part, the nomenclatures and descriptions for measurement of dimensions of machinery and attachments shall be as described in Society of Automotive Engineers 1970 Handbook, pages 1088 through 1103. **1926.602(b)(3)** The safety requirements, ratios, or limitations applicable to machines or attachment usage covered in Power Crane and Shovel Associations Standards No. 1 and No. 2 of 1968, and No. 3 of 1969, shall be complied with, and shall apply to cranes, machines, and attachments under this part. **1926.602(c)** Lifting and hauling equipment (other than equipment covered under Subpart N of this part). **1926.602(c)(1)** Industrial trucks shall meet the requirements of 1926.600 and the following: **1926.602(c)(1)(i)** Lift trucks, stackers, etc., shall have the rated capacity clearly posted on the vehicle so as to be clearly visible to the operator. When auxiliary removable counterweights are provided by the manufacturer, corresponding alternate rated capacities also shall be clearly shown on the vehicle. These ratings shall not be exceeded. **1926.602(c)(1)(ii)** No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced. **1926.602(c)(1)(iii)** If a load is lifted by two or more trucks working in unison, the proportion of the total load carried by any one truck shall not exceed its capacity. **1926.602(c)(1)(iv)** Steering or spinner knobs shall not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin. The steering knob shall be mounted within the periphery of the wheel. **1926.602(c)(1)(v)** All high lift rider industrial trucks shall be equipped with overhead guards which meet the configuration and structural requirements as defined in paragraph 421 of American National Standards Institute B56.1-1969, Safety Standards for Powered Industrial Trucks. **1926.602(c)(1)(vi)** All industrial trucks in use shall meet the applicable requirements of design, construction, stability, inspection, testing, maintenance, and operation, as defined in American National Standards Institute B56.1-1969, Safety Standards for Powered Industrial Trucks. **1926.602(c)(1)(vii)** Unauthorized personnel shall not be permitted to ride on powered industrial trucks. A safe place to ride shall be provided where riding of trucks is authorized. **1926.602(c)(1)(viii)** Whenever a truck is equipped with vertical only, or vertical and horizontal controls elevatable with the lifting carriage or forks for lifting personnel, the following additional precautions shall be taken for the protection of personnel being elevated. **1926.602(c)(1)(viii)(A)** Use of a safety platform firmly secured to the lifting carriage and/or forks. **1926.602(c)(1)(viii)(B)** Means shall be provided whereby personnel on the platform can shut off power to the truck. **1926.602(c)(1)(viii)(C)** Such protection from falling objects as indicated necessary by the operating conditions shall be provided. **1926.602(d) Powered industrial truck operator training.**	Partial	Policies reference mobile equipment use policies, however the policies are too brief/high-level and is silent on many individual provisions of the regulation including specific requirements.	X				
	1926.604 - Site clearing.	**1926.604(a)** General requirements. **1926.604(a)(1)** Employees engaged in site clearing shall be protected from hazards of irritant and toxic plants and suitably instructed in the first aid treatment available. **1926.604(a)(2)** All equipment used in site clearing operations shall be equipped with rollover guards meeting the requirements of this subpart. In addition, rider-operated equipment shall be equipped with an overhead and rear canopy guard meeting the following requirements: **1926.604(a)(2)(i)** The overhead covering on this canopy structure shall be of not less than 1/8-inch steel plate or 1/4-inch woven wire mesh with openings no greater than 1 inch, or equivalent. **1926.604(a)(2)(ii)** The opening in the rear of the canopy structure shall be covered with not less than 1/4-inch woven wire mesh with openings no greater than 1 inch.	No	No governing policy/SOP found.	X				
:6 Subpart W - lover Protective uctures; Overhead tection									
	1926 Subpart W App A - Appendix A to Subpart W – Figures W-14 through W-28	Rollover Protective Structures; Overhead Protection	No	No governing policy/SOP found.	X				
	1926.1000 - Rollover protective structures (ROPS) for material handling equipment.	**1926.1000(a)(1)** This section applies to the following types of material handling equipment: To all rubber-tired, self-propelled scrapers, rubber-tired front-end loaders, rubber-tired dozers, wheel-type agricultural and industrial tractors, crawler tractors, crawler-type loaders, and motor graders, with or without attachments, that are used in construction work. This requirement does not apply to sideboom pipe laying tractors. **1926.1000(b)** Equipment manufactured on or after September 1, 1972. Material handling machinery described in paragraph (a) of this section and manufactured on or after September 1, 1972, shall be equipped with rollover protective structures which meet the minimum performance standards prescribed in 1926.1001 and 1926.1002, as applicable. **1926.1000(c)(2)(i)** The design objective shall be to minimize the likelihood of a complete overturn and thereby minimize the possibility of the operator being crushed as a result of a rollover or upset. **1926.1000(c)(2)(ii)** The design shall provide a vertical clearance of at least 52 inches from the work deck to the ROPS at the point of ingress or egress .	No	No governing policy/SOP found.	X				
	1926.1001 - Minimum performance criteria for rollover protective structures for designated scrapers, loaders, dozers, graders, and crawler tractors.	**1926.1001(a)** General. This section prescribes minimum performance criteria for rollover protective structures (ROPS) for rubber-tired self-propelled scrapers; rubber-tired front-end loaders and rubber-tired dozers; crawler tractors, and crawler-type loaders, and motor graders. The vehicle and ROPS as a system shall have the structural characteristics prescribed in paragraph (f) of this section for each type of machine described in this paragraph.	No	No governing policy/SOP found.	X				
	1926.1002 - Protective frames (roll-over protective structures, known as ROPS) for wheel-type agricultural and industrial tractors used in construction.	**1926.1002(a)(1)** The purpose of this section is to set forth requirements for frames used to protect operators of wheel-type agricultural and industrial tractors that will minimize the possibility of operator injury resulting from accidental upsets during normal operation. With respect to agricultural and industrial tractors, the provisions of 29 CFR 1926.1001 and 1926.1003 for rubber-tired dozers and rubber-tired loaders may be used instead of the requirements of this section. **1926.1002(a)(2)** The protective frame that is the subject of this standard is a structure mounted to the tractor that extends above the operator's seat and conforms generally to Figure W-14. **1926.1002(a)(3)** When an overhead weather shield is attached to the protective frame, it may be in place during testing, provided that it does not contribute to the strength of the protective frame. When such an overhead weather shield is attached, it must meet the requirements of paragraph (i) of this section. **1926.1002(a)(4)** For overhead protection requirements, see 29 CFR 1926.1003. **1926.1002(a)(5)** The following provisions address requirements for protective enclosures. **1926.1002(a)(5)(i)** When protective enclosures are used on wheel-type agricultural and industrial tractors, they shall meet the requirements of Society of Automotive Engineers ("SAE") standard J168-1970 ("Protective enclosures -- test procedures and performance requirements"), which is incorporated by reference. The incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51	No	No governing policy/SOP found.	X				

Appendix C
Crosswalk of OSHA Obligation Gaps

Occupational Safety & Health					Consolidated Deficiency Groupings				
Statutory Requirement (29 CFR)	Subpart Reference	Basic Requirements	Requirement Met by HMC?	Comments	1	2	3	4	5
	1926.1003 - Overhead protection for operators of agricultural and industrial tractors.	**1926.1003(a)(1)** ***Purpose*** **.** When overhead protection is provided on wheel-type agricultural and industrial tractors, the overhead protection shall be designed and installed according to the requirements contained in this section. The provisions of 29 CFR 1926.1001 for rubber-tired dozers and rubber-tired loaders may be used instead of the standards contained in this section. The purpose of this standard is to minimize the possibility of operator injury resulting from overhead hazards such as flying and falling objects, and at the same time to minimize the possibility of operator injury from the cover itself in the event of accidental upset. **1926.1003(a)(2)** ***Applicability*** **.** This standard applies to wheel-type agricultural and industrial tractors used in construction work (see 29 CFR 1926.1002(b) and (j)). In the case of machines to which 29 CFR 1926.604 (relating to site clearing) also applies, the overhead protection may be either the type of protection provided in 29 CFR 1926.604, or the type of protection provided by this section. **1926.1003(b)** ***Overhead protection*** **.** Overhead protection. When overhead protection is installed on wheel-type agricultural or industrial tractors used in construction work, it shall meet the requirements of this paragraph. The overhead protection may be constructed of a solid material. When grid or mesh is used, the largest permissible opening shall be such that the maximum circle that can be inscribed between the elements of the grid or mesh is 1.5 in. (38 mm) in diameter. The overhead protection shall not be installed in such a way as to become a hazard in the case of upset.	No	No governing policy/SOP found.	X				

Appendix B
Crosswalk of NRC License and Other Obligation Gaps

Materials License SUA-1471, Amendment 49 and Other Applicable Regulatory Obligations							Consolidated Deficiency Groupings				
License Condition or Requirement	Requirement	Requirement met?	Comments	Corrective Action Items	Status	Responsible	1	2	3	4	5
10	This license authorizes only the possession of residual uranium and byproduct material in the form of uranium waste tailings and other byproduct waste generated by the licensee's past milling operations in accordance with Tables 1 and 3 and the procedures submitted by letter dated September 2, 1993, as modified by letter dated March 7, 1996.In accordance with Tables 1 and 3 and the procedures submitted by letter to NRC.	Partial	Table 3 "Homestake Occupational Monitoring Program (8-93)" Table 3 includes weekly alpha surveys in lunchrooms and changing areas, as well as calibration of radiation detection instruments every 6 months.	HMC is not conducting routine contamination surveys throughout the facility, i.e., lunch room, break room, change rooms, offices. These types of areas should be periodically surveyed to ensure contamination is not leaving the restricted area. SOP 12 and the RPPM should be modified to include a table of routine survey locations that should be performed on a periodic basis. This table should provide the area to be located, the frequency, type of survey to be performed and the acceptable criteria.	Updated survey and calibration frequencies to match requirement. Develop LAR to eliminate unneeded requirements	ERM/HMC	X				
16	Before engaging in any activity not previously assessed by the NRC, the licensee shall prepare and record an environmental evaluation of such activity.	No	NRC Inspection Report 040-08903/2017-001 Contrary to the above, as of April 24, 2017, the licensee failed to prepare and record an environmental evaluation of an activity that may have resulted in a significant adverse environmental impact that was not previously assessed or that is greater than that previously assessed. Specifically, the licensee reviewed and approved a change, via Safety and Environmental Review Panel 15-01, which expanded the onsite and offsite groundwater corrective action program and approved a new methodology for injection of groundwater. However, the licensee failed to prepare and record an environmental evaluation of this activity or obtain prior approval of the NRC in the form of a license amendment. This is a Severity Level IV violation Additionally, the 2005 informal agreement between previous HMC staff and several local landowners to provide compliant water from the Site for irrigation purposes was never assessed via SERP or submitted to the NRC for approval.	Update SOP-10 SERP process to clearly document environmental evaluation of new activities not previously assessed by the NRC.	Response letter submitted to NRC on August 3, 2017. SOP-10 (SERP) has been revised to more rigorously follow the intent and approach of the 10 CFR 50.59 process and focuses explicitly on both Environmental and Cultural resource evaluations. HMC prepared SOW for survey updates and sent out to compiled list of vendors. ERM selected for the work. Desktop work initiated in Dec. 2017, with on-Site work starting on Jan. 9th, 2018 and continuing into summer of 2018. ERM will be back on-site when seasons change to complete environmental surveys (ECD late 2018).	ERM / HMC	X			X	
16	When the "environmental" evaluation indicates that such activity may have significant adverse environmental impact that was not previously assessed or that is greater than that previously assessed, the licensee shall provide a written evaluation of such activities and obtain prior approval of the NRC in the form of a license amendment.	No	NRC Inspection Report 040-08903/2017-001 Contrary to the above, as of April 24, 2017, the licensee failed to prepare and record an environmental evaluation of an activity that may have resulted in a significant adverse environmental impact that was not previously assessed or that is greater than that previously assessed. Specifically, the licensee reviewed and approved a change, via Safety and Environmental Review Panel 15-01, which expanded the onsite and offsite groundwater corrective action program and approved a new methodology for injection of groundwater. However, the licensee failed to prepare and record an environmental evaluation of this activity or obtain prior approval of the NRC in the form of a license amendment. This is a Severity Level IV violation. Additionally, the 2005 informal agreement between previous HMC staff and several local landowners to provide compliant water from the Site for irrigation purposes was never assessed via SERP or submitted to the NRC for approval.	Update SOP-10 SERP process to clearly document environmental evaluation of new activities not previously assessed by the NRC.	Response letter submitted to NRC on August 3, 2017. SOP-10 (SERP) has been revised to more rigorously follow the intent and approach of the 10 CFR 50.59 process and focuses explicitly on both Environmental and Cultural resource evaluations.	HMC	x			X	
22	Unless otherwise specified in the NRC regulations, all such documentation (as identified in above requirement) shall be maintained for a period of at least 5 years.	No	HMC has no formal centralized record retention policy/matrix HMC SOP 31 does not mention retention of records for 5 years.	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition instruction for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been mt.	HMC has drafted but not yet adopted SOP-34 (Document Control), which addresses document retention. Final scope of the new policy/matrix will be established by the gap analysis of the self-assessment. Design and development of the new policy/matrix will be assigned per the follow-on corrective action plan. SOP-31 Electronic File Organization, which addresses where certain digital files should be stored on the Site Server has been drafted.	HMC		X			
23	Written procedures shall be established for environmental monitoring, bioassay analysis and instrument calibrations.	Partial	NRC Inspection Report 040-08903/2017-001 (This comment does not apply to this LC) Contrary to the above, as of April 24, 2017, the licensee failed to establish standard procedures for all activities involving radioactive materials that are handled, processed, or stored. Specifically, the licensee failed to establish standard procedures for disposal of wastes in the onsite small tailings pile, operation of the 1,200 gallon per minute zeolite system, and operation of the evaporation ponds. This is a Severity Level IV violation	HMC should establish standard procedures for disposal of waste in the onsite small tailings pile, operation of the 1,200 gallon per minute zeolite system and operation of the evaporation ponds	HMC has established SOPs for disposal of wastes in the onsite small tailings pile, operation of the evaporation ponds and operation of the 1200 gpm zeolite remediation system. These SOPs are available for NRC verification during a future inspection.	HMC	X				
24	The RWP shall be approved by the RPA or his designee, qualified by way of specialized radiation protection training, and shall describe the following: a) the scope of the work to be performed, b) Any precautions necessary to reduce exposure to uranium and its daughters, c) The supplemental radiological monitoring and sampling necessary prior to and following completion of the work.	Partial	No current provision for "or designee" in SOPs or RPPM	The RPPM should be revised to allow either the RSO or his designated alternate to sign RWPs..The designated alternate needs to meet all of the qualification as specified in Regulatory Guide 8.31 (rev. 1) and should be designated in writing.		HMC	X				
35	The licensee shall implement a groundwater compliance monitoring program to assess the performance of the groundwater restoration program. This program is separate from the requirements in LC 15	No	GW compliance monitoring program is outdated and needs updating (will require license amendment). NRC has indicated in a previous inspection that the groundwater monitoring plan should be updated for coverage of all of the restoration areas at the site. Also need to submit a license amendment to transition sliver zeolite treatment process from pilot program to production.	A proposed amendment to recognize the two zeolite water treatment systems as the formal method of remediation should be prepared and submitted to the USNRC.	Submitted to the NRC on Dec. 12, 2017 (ADAMS Accession #ML17361A006). Waiting on NRC response.	HMC	X			X	
35.1	The licensee shall implement the groundwater monitoring shown on *Table 2 (8-99) submitted September 29, 1999* , except that under "Reversal Wells" delete Well KF and replace with Well DZ, and except that well CW2 will remain in the sampling program monitoring annually for G list of parameters, and Cr is to be deleted from the D and F list of parameters. Well DD and one additional monitoring well to the middle of the southeast side of EP3 (to be named later) is to be added to the Table list and will be monitored semi-annually for the ZB and F list of parameters. The additional well is to be installed and monitored quarterly for at least two quarters prior to EP3 becoming operational to determine background water quality for the well.	No	SOP 17 is outdated and needs revision to match LC 35. It still refers to Reversal Well KF (not well DZ), CW2 is not in Table 2, Cr has not been deleted from list of D and F parameters, and well DD as well as the well to be named later (DD2?) are not listed in Table 2 of the SOP.	SOP-17 should reflect current sampling practices as required by LC35 and DP-200. Proposed amendment to groundwater compliance monitoring program will change these again when approved by NRC, but SOP-17 needs to be updated now.	Revise SOP-17 GW monitoring plan changes submitted to the NRC on Nov 20, 2017 (ADAMS Accession #ML18018A102). Waiting on NRC response.	HMC	X				
35D	Operate evaporation ponds EP1, EP2 and EP3, and enhanced evaporation system located in each pond as described in the *June 8 and 28, 1990; July 26, August 16, August 19, September 2 and 15, 1994; October 25,2006, February 7, 2007, July 18, 2007 and March 17, 2008 submittals* .	No	High volume on pumping rates of leak detection systems on Evaporation Pond Nos. 2 and 3. NRC action level of 775 gallons per acre of liner per day established in cited letters has been exceeded on several previous occasions. NRC Inspection 2018-01 identified that "Contrary to the above, during short periods of time in 2016 and 2017, the licensee failed to take the immediate actions specified in the July 18, 2007, letter. The licensee's failure to take the required actions in response to exceedances of the action leakage rate in 2016 and parts of 2017 was identified as a violation of License Condition 35.D (NCV 040-08903/1801-01)."	Evaluate if the USNRC action levels should be adjusted similar to the adjustments that were made with the DP-200 renewal.	Four or 5 sumps have been compromised. Issue finding 2-inch ID pumps to fit down compromised sumps. So, trying to locate pumps with a drop-pipe down into sumps. Pulled pumps from sumps at Pond No. 2, and found a couple of sumps with compromised 6-inch piping that apparently was non-spec (thinner walled), same as Pond No. 3.	HMC	X			X	
36B.2	Projected completion of ground-water corrective actions to meet performance objectives specified in the *ground-water corrective plan - December 2013* .	Partial	LC number 35 states: "The licensee shall implement a groundwater compliance monitoring program to assess the performance of the groundwater restoration program." SOP -17 has previously provided the basic program, however, SOP-17 does not reference LC 36 as a potentially applicable regulatory basis. SOP-17 is being revised to only be a sampling procedure, so a comprehensive Compliance Monitoring Program is needed.	Modify SOP 17 to indicate LC 36 is applicable as a regulatory basis. Upon completion of the groundwater monitoring program, provide a final report that describes the final actions taken and final results of the program.		HMC	X				

Appendix B
Crosswalk of NRC License and Other Obligation Gaps

Materials License SUA-1471, Amendment 49 and Other Applicable Regulatory Obligations							Consolidated Deficiency Groupings				
License Condition or Requirement	Requirement	Requirement met?	Comments	Corrective Action Items	Status	Responsible	1	2	3	4	5
36E	As detailed in the licensee's *October 28, 2003 submittal* , the licensee is to verify compliance with the radon flux standard of 20 pCi/m^{2}s by performing a radon flux survey for the large and small tailings piles on an annual basis during the milestone extension period specified above (36A and 36B).	No	NRC Inspection Report 040-08903/2016-001 NRC identified a single violation of NRC requirements with three components, viz., that in August 2015, HMC failed to verify through appropriate testing and analysis that radon releases did not exceed 20 pCi/m2s; failed to ensure that a single set of radon flux measurements were made; and failed to have the required 100 measurements from each mill tailings pile. The NRC determined that this constituted a Severity Level IV violation.	Proposal for a variance from regulatory requirements contained in HMC letter dated September 13, 2017 did not meet the intent of 10 CFR 40.14(a) for specific exemptions; thus, HMC was advised to resubmit request for a variance with sufficient detail so the NRC could conduct a technical review of the request. Submit request for variance from regulatory requirements. NRC directed in its review of HMC's response that "Procedure for monitoring radon flux presented in HMC's September 13, 2017 letter should be implemented on an interim basis, until NRC agrees on longer-term solutions to the radon flux exceedances." Revise appropriate SOPs to reflect any changes. Development of request for exemption of the radon flux standard on top of the LTP is pending additional radon and radon progeny monitoring to corroborate MILDOS modeling results for public dose with analytical measurement data. At the recent NRC inspection, 1-2 months of additional monitoring data was discussed as an appropriate amount to support the modeling and exemption request. Develop request for exemption	Proposal for a variance from regulatory requirements contained in HMC letter dated September 13, 2017 did not meet the intent of 10 CFR 40.14(a) for specific exemptions; thus, HMC was advised to resubmit request for a variance with sufficient detail so the NRC could conduct a technical review of the request. NRC directed in its review of HMC's response that "Procedure for monitoring radon flux presented in HMC's September 13, 2017 letter should be implemented on an interim basis, until NRC agrees on longer-term solutions to the radon flux exceedances." Development of request for exemption of the radon flux standard on top of the LTP is pending additional radon and radon progeny monitoring to corroborate MILDOS modeling results for public dose with analytical measurement data. At the recent NRC inspection, 1-2 months of additional monitoring data was discussed as an appropriate amount to support the modeling and exemption request.	HMC / ERG	X			X	X
37K	The licensee shall implement a quality control (QC) program for the soil cleanup verification program to include sending at least 10 percent of the samples (randomly selected) to a vendor laboratory for RA-226 analysis.	Partial	Value was included as part of 2013 DRP update which is still in NRC approval cycle.	The current QAP should be reviewed and updated to support this requirement.		HMC	X				
37K	If the vendor laboratory (for above analysis) uses gamma spectroscopy, at least 30 percent of these QC samples shall be chemically analyzed.	Partial	Value was included as part of 2013 DRP update which is still in NRC approval cycle.	The current QAP should be reviewed and updated to support this requirement.		HMC	X				
40	All written notices and reports to NRC required under this license shall be addressed: ATTN: Document Control Desk, c/o Deputy Director, Division of Decommissioning, Uranium Recovery, Waste Programs (Mailstop T8-F5), Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, 11545 Rockville Pike, Two White Flint North, Rockville, MD 20852-2738.	Partial	mailing address only found in license - not SOP	Revise appropriate policy and procedures to identify the NRC address for the submittal of written reports. As an alternative, this can be included in the procedure that provides the records retention period or a new document on records and written correspondence in general.		HMC	X	X			
40	Required telephone notification shall be made to the NRC Operations Center at (301) 816-5100, unless otherwise specified in license conditions.	Partial	phone number only found in license - not SOP	Revise appropriate policy and procedures to identify the NRC phone number for the submittal of verbal reports. As an alternative, this can be included in the procedure that provides the records retention period or a new document on records and written correspondence in general.		HMC	X	X			
42	An annual report will be submitted to the NRC that includes the ALARA audit report, land use survey, monitoring data, corrective action program report, and the effluent and environmental monitoring reports.	Partial	The ALARA Audit Report included in the 2017 Annual Report generally meets the NRC requirements. The annual report also includes a land use survey, an annual inspection of the tailings piles and ponds, water quality data for the tailings wells, well and aquifer water levels. It also provides aquifer monitoring data. Did not see any airborne radioactivity or radon monitoring environmental monitoring data or specific CAP report summary. NRC Inspection Report 040-08903/2017-002 - (URI 040-08903/1702-01) Since the licensee was not performing internal occupational dose monitoring, and had no recent data or concentrations of airborne uranium or radon progeny on top of the large tailings pile, it was unclear whether the licensee was in compliance with 10 CFR 20.1502(b)(1), which requires, in part, that a licensee must monitor employees for occupational intake of radiative material if they are likely to receive greater than 10 percent of the applicable annual limit on intakes from Table 1, columns 1 and 2, of Appendix B to 10 CFR 20. The inspectors concluded that there was not enough information to determine if the licensee was in compliance with regulatory requirements, and this issue was identified as an unresolved item (URI). The licensee has committed to perform a characterization of occupational exposure concentrations of all radionuclides of concern. The characterization will include data collection of internal and external exposures of workers performing routine and non-routine jobs. The inspectors will evaluate this information during a future inspection to determine if the licensee is in compliance with regulatory requirements.	Perform a characterization of occupational exposure concentrations of all radionuclides of concern. 1. HMC personnel will begin sending all Field Level Risk Assessments (FLRA) that could involve significant exposures to radioactive materials to the RSO for review and evaluation of the need for a RWP or any special radiation protection measures. This will include any FLRA that involves non-routine work at the evaporation-ponds, Zeolite facilities, RO unit, and any drilling activities that could come into contact with contaminated subsurface material. 2. The RSO will conduct further training with RST's on recognition of radiological hazards as part of the FLRA procedure to determine whether RSO review of the FLRA is warranted for evaluation of a RWP or any special radiation protection measures. 3. RST's will be required to provide detailed descriptions in the FLRA of any work that may involve exposures to radioactive materials. 4. The RSO will ensure that he/she has a complete understanding of the scope of any work that warrants evaluation for a RWP. 5. RST's will be required to follow all RSO instructions for any radiological protection measures specified by the RSO, and to document implementation of these measures, regardless of whether or not a RWP has been issued for the work. 6. SOP 18 (implementation of RWP's) will be revised as needed to include these corrective actions, as well as clarification of circumstances under which the need for a RWP are required under LC 24. -Not numbered - "Finally, this event and the above information will be added to the self assessment under the Confirmatory Order." Develop a report with presentation, analysis and conclusions of all occupational exposure monitoring data prior to next NRC inspection (Sept 2018).	ERG submitted internal Technical Memorandum to HMC on Dec. 4, 2017. Ties in with radon flux issues. A lot in place, most is functional, cold weather-related issue with one continuous monitoring station. Getting good data overall. Heat blankets installed in monitoring stations as needed. New radon monitor station to be installed the week of Jan. 22nd. 2. The revised radon flux measurement procedure and license amendment request is a ways out (possibly several months) as this is contingent on getting enough radon and radon progeny data to support the MILDOS modeling results with respect to public dose (NRC will not accept a variance request on the flux standard based on modeling alone).(2/7/18 update) In a 9/18/2017 email from ERG (Whicker) to NRC (Gersey), the additional commitments listed in the action items column were made for corrective actions to be taken in response to the concern identified in the URI. Monitoring results to date presented at March 2018 NRC inspection. NRC requested that a report with presentation, analysis and conclusions of all occupational exposure monitoring data be developed by the next inspection (anticipated in September 2018).	ERG/HMC	X	X	X	X	X
43	Before engaging in any development activity not previously assessed by the NRC, the licensee shall administer a cultural resource inventory. All disturbances associated with the proposed development will be completed in compliance with the *National Historic Preservation Act (as amended) and its implementing regulations (36 CFR 800) and Archaeological Resources Protection Act (as amended) and its implementing regulations (43 CFR 7)* .	No	NRC Inspection Report 040-08903/2017-001 Contrary to the above, as of April 24, 2017, the licensee failed to administer a cultural resource inventory before engaging in a developmental activity which was not previously assessed by the NRC. Specifically, the licensee reviewed and approved a change, via Safety and Environmental Review Panel 15-01, which expanded the onsite and offsite groundwater corrective action program and approved a new methodology for injection of groundwater. However, the licensee failed to administer a cultural resource inventory before engaging in this developmental activity, an activity which was not previously assessed by the NRC. This is a Severity Level IV violation	Update SOP-10 SERP process to clearly document evaluation of the impact on cultural resources of new activities not previously assessed by the NRC.	Response letter submitted to NRC on August 3, 2017. HMC update SOP 10, Procedure for Conducting a Safety and Environmental Review Panel (SERP) to more clearly define when environmental reviews, which include assessment of cultural resources, must be performed. HMC prepared SOW for survey updates and sent out to compiled list of vendors. ERM selected for the work. Desktop work initiated in Dec. 2017, with on-Site work starting on Jan. 9th, 2018 and continuing into summer of 2018. ERM will be back on-site when seasons change to complete environmental surveys (ECD late 2018).	Lone Mtn / HMC	X			X	X
10 CFR 40											
10 CFR 40.61(b)	The licensee shall retain each record that is required by the regulations in this part or by license condition for the period specified by the appropriate regulation or license condition. If a retention period is not otherwise specified by regulation or license condition, each record must be maintained until the Commission terminates the license that authorizes the activity that is subject to the recordkeeping requirement.	No	PGD 3, SOP 2, and SOP 22 identify recordkeeping requirements. The Recordkeeping section of SOP 10 indicates that SERP reports must be maintained until license termination. The Roles and Responsibilities section of SOP 27 indicates that the Site Safety Officer or Compliance Manager is responsible for recordkeeping requirements related to Chemical Hazard Communication. SOP 31 - No retention periods are specified SOP 32 identifies recordkeeping requirements associated with leak detection. In summary, there is no procedure that identifies all recordkeeping requirements. This procedure should be developed.	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.			X	X			
Appendix A, Criterion 5A(3)	The applicant or licensee will be exempted from the requirements of paragraph 5A(1) of this criterion if the Commission finds, based on a demonstration by the applicant or licensee, that alternate design and operating practices, including the closure plan, together with site characteristics will prevent the migration of any hazardous constituents into groundwater or surface water at any future time. In deciding whether to grant an exemption, the Commission will consider: (a) The nature and quantity of the wastes; (b) The proposed alternate design and operation; (c) The hydrogeologic setting of the facility, including the attenuative capacity and thickness of the liners and soils present between the impoundment and groundwater or surface water; and (d) All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to groundwater or surface water.	Partial - program is implemented	Did not find a design control and process procedure	Develop a design control and process document and incorporate into the QAP.		HMC	X				
Appendix A, Criterion 5A(4)	A surface impoundment must be designed, constructed, maintained, and operated to prevent overtopping resulting from normal or abnormal operations, overfilling, wind and wave actions, rainfall, or run-on; from malfunctions of level controllers, alarms, and other equipment; and from human error.	Partial - program is implemented	Did not find a design control and process procedure - performance is through SOP and RPPM use.	Develop a design control and process document and incorporate into the QAP.		HMC	X				

Appendix B
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Materials License SUA-1471, Amendment 49 and Other Applicable Regulatory Obligations							Consolidated Deficiency Groupings				
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Appendix A, Criterion 5B(1)	Uranium and thorium byproduct materials must be managed to conform to the following secondary groundwater protection standard: Hazardous constituents entering the groundwater from a licensed site must not exceed the specified concentration limits in the uppermost aquifer beyond the point of compliance during the compliance period. Hazardous constituents are those constituents identified by the Commission pursuant to paragraph 5B(2) of this criterion. Specified concentration limits are those limits established by the Commission as indicated in paragraph 5B(5) of this criterion. The Commission will also establish the point of compliance and compliance period on a site specific basis through license conditions and orders. The objective in selecting the point of compliance is to provide the earliest practicable warning that the impoundment is releasing hazardous constituents to the groundwater. The point of compliance must be selected to provide prompt indication of groundwater contamination on the hydraulically downgradient edge of the disposal area. The Commission shall identify hazardous constituents, establish concentration limits, set the compliance period, and may adjust the point of compliance if needed to accord with developed data and site information as to the flow of groundwater or contaminants, when the detection monitoring established under Criterion 7A indicates leakage of hazardous constituents from the disposal area.	Partial	Section 2.1.2.5 of the 2017 Annual Report identifies exceedances. Manual of SOP's TOC SOP-15 is entitled RO Water Plant Sampling and Analysis (HP-9), which is not the correct title	Correct the Manual of Standard Practices Table of Contents to correct the title of SOP 15.		HMC	X				
Appendix A, Criterion 6A(2)	The Commission may approve a licensee's request to extend the time for performance of milestones related to emplacement of the final radon barrier if, after providing an opportunity for public participation, the Commission finds that the licensee has adequately demonstrated in the manner required in paragraph (2) of Criterion 6 that releases of radon-222 do not exceed an average of 20 pCi/m2 s, if the delay is approved on the basis that the radon releases do not exceed 20 pCi/m2s, a verification of radon levels, as required by paragraph (2) of Criterion 6, must be made annually during the period of delay. In addition, once the Commission has established the date in the reclamation plan for the milestone for completion of the final radon barrier, the Commission may extend that date based on cost if, after providing an opportunity for public participation, the Commission finds that the licensee is making good faith efforts to emplace the final radon barrier, the delay is consistent with the definition of available technology, and the radon releases caused by the delay will not result in a significant incremental risk to the public health.	No	Not met for 2016 - section 2.6 of annual report. From section 2.6 of 2017 Annual Report - NOV issued by NRC as area-weighted average radon flux on the LTP was 21.73 pCi.m2-s. Radon Barrier Set in place: For the Large Impoundment which has no evaporation ponds - December 31, 2012 although a final radon barrier to be placed upon completion of flushing of tailings in the LTP. For the Small Impoundment, tailings pile surface areas are essentially covered by evaporation ponds constructed as part of the ground-water corrective action program. Prior to December 31, 2013, the areas not covered by the evaporation ponds shall have final radon barrier in place. Final radon barrier placement over the entire pile shall be completed within 2 years of completion of ground-water corrective actions.	Define actions that are being taken to reduce radon flux amounts while barrier is not complete.		HMC	X			X	X
Appendix A, Criterion 6A(3)	The Commission may authorize by license amendment, upon licensee request, a portion of the impoundment to accept uranium byproduct material or such materials that are similar in physical, chemical, and radiological characteristics to the uranium mill tailings and associated wastes already in the pile or impoundment, from other sources, during the closure process. No such authorization will be made if it results in a delay or impediment to emplacement of the final radon barrier over the remainder of the impoundment in a manner that will achieve levels of radon-222 releases not exceeding 20 pCi/m2s averaged over the entire impoundment. The verification required in paragraph (2) of Criterion 6 may be completed with a portion of the impoundment being used for further disposal if the Commission makes a final finding that the impoundment will continue to achieve a level of radon-222 releases not exceeding 20 pCi/m2 s averaged over the entire impoundment. In this case, after the final radon barrier is complete except for the continuing disposal area, (a) only byproduct material will be authorized for disposal, (b) the disposal will be limited to the specified existing disposal area, and (c) this authorization will only be made after providing opportunity for public participation. Reclamation of the disposal area, as appropriate, must be completed in a timely manner after disposal operations cease in accordance with paragraph (1) of Criterion 6; however, these actions are not required to be complete as part of meeting the deadline for final radon barrier construction.	No	Not met for 2016 - section 2.6 of annual report. From section 2.6 of 2017 Annual Report - NOV issued by NRC as area-weighted average radon flux on the LTP was 21.73 pCi.m2-s. Radon Barrier Set in place: For the Large Impoundment which has no evaporation ponds - December 31, 2012 although a final radon barrier to be placed upon completion of flushing of tailings in the LTP. For the Small Impoundment, tailings pile surface areas are essentially covered by evaporation ponds constructed as part of the ground-water corrective action program. Prior to December 31, 2013, the areas not covered by the evaporation ponds shall have final radon barrier in place. Final radon barrier placement over the entire pile shall be completed within 2 years of completion of ground-water corrective actions.	Define actions that are being taken to reduce radon flux amounts while barrier is not complete.		HMC				X	X
Appendix A, Criterion 8A	Daily inspections of tailings or waste retention systems must be conducted by a qualified engineer or scientist and documented. The licensee shall retain the documentation for each daily inspection as a record for three years after the documentation is made. The appropriate NRC regional office as indicated in appendix D to 10 CFR part 20 of this chapter, or the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, must be immediately notified of any failure in a tailings or waste retention system that results in a release of tailings or waste into unrestricted areas, or of any unusual conditions (conditions not contemplated in the design of the retention system) that if not corrected could indicate the potential or lead to failure of the system and result in a release of tailings or waste into unrestricted areas.	Partial	Unknown if inspector is engineer or scientist.	Ensure inspector is a qualified engineer or scientist not a technician. Provide documentation of the inspector qualifications along with the reports. Revise appropriate policy and procedures to identify the NRC address for the submittal of written reports. As an alternative, this can be included in the procedure that provides the records retention period or a new document on records and written correspondence in general.		HMC	X	X	X		
10 CFR 20											
20.1101(a)	Each licensee shall develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with the provisions of this part. (See § 20.2102 for recordkeeping requirements relating to these programs.)	No	RPPM is not signed or dated	Have RPPM signed by the RSO and dated.		HMC	X				
20.1201(e)	In addition to the annual dose limits, the licensee shall limit the soluble uranium intake by an individual to 10 milligrams in a week in consideration of chemical toxicity (see footnote 3 of appendix B to part 20).	No	No discussion of the 10 mg/wk discussed in RPPM, procedure unclear how this is enforced.	Modify RPPM to discuss the 10mg/wk limitation.		HMC	X				
20.1201(f)	The licensee shall reduce the dose that an individual may be allowed to receive in the current year by the amount of occupational dose received while employed by any other person (see § 20.2104(e)).	No	Not discussed in procedure	Provide in RPPM and SOP13, the process for accounting for occupational exposure received at other facilities during the current calendar year, when evaluating the occupational dose likely to be received at the Homestake facility.		HMC	X				
20.1207	The annual occupational dose limits for minors are 10 percent of the annual dose limits specified for adult workers in § 20.1201.	No	No discussion in either RPPM or SOPs	Provide a discussion in the RPPM for the restriction of occupational exposure to minors.		HMC	X				
20.1208(a)	The licensee shall ensure that the dose equivalent to the embryo/fetus during the entire pregnancy, due to the occupational exposure of a declared pregnant woman, does not exceed 0.5 rem (5 mSv). (For recordkeeping requirements, see § 20.2106.)	No	No discussion in either RPPM or SOPs	Provide a discussion in the RPPM for the restriction of occupational exposure to embryo/fetus during the entire pregnancy period.		HMC	X				
20.1208(b)	The licensee shall make efforts to avoid substantial variation above a uniform monthly exposure rate to a declared pregnant woman so as to satisfy the limit in paragraph (a) of this section.	No	No discussion in either RPPM or SOPs	Provide a discussion in the RPPM for the restriction of occupational exposure to declared pregnant women..		HMC	X				
20.1301(a)	Each licensee shall conduct operations so that: (1) The total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year, exclusive of the dose contributions from background radiation, from any administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with § 20.2003, and (2) The dose in any unrestricted area from external sources, exclusive of the dose contributions from patients administered radioactive material and released in accordance with § 35.75, does not exceed 0.002 rem (0.02 millisievert) in any one hour.	No	There is no reference to a TEDE dose rate to the general public of .002 rem per hour in an unrestricted area. Table 1 of the RPPM defines a TEDE of 100 mrem per year for the general public depending on if restricted or unrestricted area.	Provide reference in the RPPM Table 1 for a TEDE to the general public of 0.002 rem in any hour in unrestricted areas.		HMC	X				
20.1502(a)	Each licensee shall monitor occupational exposure to radiation from licensed and unlicensed radiation sources under the control of the licensee and shall supply and require the use of individual monitoring devices by: Adults likely to receive, in 1 year from sources external to the body, a dose in excess of 10 percent of the limits in § 20.1201(a), Minors likely to receive, in 1 year, from radiation sources external to the body, a deep dose equivalent in excess of 0.1 rem (1 mSv), a lens dose equivalent in excess of 0.15 rem (1.5 mSv), or a shallow dose equivalent to the skin or to the extremities in excess of 0.5 rem (5 mSv); Declared pregnant women likely to receive during the entire pregnancy, from radiation sources external to the body, a deep dose equivalent in excess of 0.1 rem (1 mSv);2 and (4) Individuals entering a high or very high radiation area	Partial	No guidance for minors or pregnant women in RPPM or Manual of Standards Practices.	Include guidance on occupational exposure to minors and pregnant workers in the RPPM or/or Manual of Standard Practices.		HMC	X				
20.2102(b)	The licensee shall retain the records required by paragraph (a)(1) of this section until the Commission terminates each pertinent license requiring the record. The licensee shall retain the records required by paragraph (a)(2) of this section for 3 years after the record is made.	Partial	No retention periods provided	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.		HMC	X	X			
20.2103(a)	Each licensee shall maintain records showing the results of surveys and calibrations required by §§ 20.1501 and 20.1906(b). The licensee shall retain these records for 3 years after the record is made.	Partial	No retention periods provided	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.		HMC	X	X			

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20.2103(b)	The licensee shall retain each of the following records until the Commission terminates each pertinent license requiring the record: (1) Records of the results of surveys to determine the dose from external sources and used, in the absence of or in combination with individual monitoring data, in the assessment of individual dose equivalents. This includes those records of results of surveys to determine the dose from external sources and used, in the absence of or in combination with individual monitoring data, in the assessment of individual dose equivalents required under the standards for protection against radiation in effect prior to January 1, 1994; and (2) Records of the results of measurements and calculations used to determine individual intakes of radioactive material and used in the assessment of internal dose. This includes those records of the results of measurements and calculations used to determine individual intakes of radioactive material and used in the assessment of internal dose required under the standards for protection against radiation in effect prior to January 1, 1994; and (3) Records showing the results of air sampling, surveys, and bioassays required pursuant to § 20.1703(c)(1) and (2). This includes those records showing the results of air sampling, surveys, and bioassays required under the standards for protection against radiation in effect prior to January 1, 1994; and (4) Records of the results of measurements and calculations used to evaluate the release of radioactive effluents to the environment. This includes those records of the results of measurements and calculations used to evaluate the release of radioactive effluents to the environment required under the standards for protection against radiation in effect prior to January 1, 1994.	Partial	No retention periods provided	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.		HMC	X	X			
20.2105(b)	The licensee shall retain the records until the Commission terminates each pertinent license requiring these records.	Partial	No retention periods provided	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.		HMC	X	X			
20.2106 (d)	The records required under this section should be protected from public disclosure because of their personal privacy nature. These records are protected by most State privacy laws and, when transferred to the NRC, are protected by the Privacy Act of 1974, Public Law 93-579, 5 U.S.C. 552a, and the Commission's regulations in 10 CFR part 9.	No	No policy or procedure for protection of personal information was found	Prepare a personnel record security policy and procedure. This could be part of the records retention policy.		HMC	X	X			
20.2106 (e)	The licensee shall maintain the records of dose to an embryo/fetus with the records of dose to the declared pregnant woman. The declaration of pregnancy shall also be kept on file, but may be maintained separately from the dose records.	No	No policy or procedure for pregnant workers was found	Develop a policy and procedure for Pregnant workers exposed to ionizing radiation. Include discussion in RPPM.		HMC	X	X			
20.2106 (f)	The licensee shall retain the required form or record until the Commission terminates each pertinent license requiring this record. This includes records required under the standards for protection against radiation in effect prior to January 1, 1994.	Partial	No retention periods provided	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.		HMC	X	X			
20.2107(b)	The licensee shall retain the records required by paragraph (a) of this section until the Commission terminates each pertinent license requiring the record.	Partial	No retention periods provided	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.		HMC	X	X			
20.2108 (a)	Each licensee shall maintain records of the disposal of licensed materials made under §§ 20.2002, 20.2003, 20.2004, 20.2005, 10 CFR part 61 and disposal by burial in soil, including burials authorized before January 28, 1981	Partial	No retention periods provided	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.		HMC	X	X			
20.2108 (b)	The licensee shall retain the records required by paragraph (a) of this section until the Commission terminates each pertinent license requiring the record. Requirements for disposition of these records, prior to license termination, are located in §§ 30.51, 40.61, 70.51, and 72.80 for activities licensed under these parts.	Partial	No retention periods provided	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.		HMC	X	X			
3	Post-Operational or Termination Bioassay should be performed upon completion of an individual's work assignment at a licensee's facility or when the individual worker has been terminated from tasks involving uranium assignments. The post-operational or termination bioassay sample should be performed within 2 weeks (14 days) of the operations being discontinued or the assignment terminated. A contingency plan should be developed to avoid or eliminate the failure of the last bioassay measurement.	Partial	*SOP 14, Procedure for Bioassay Sample Collection, does mention termination bioassays, but it does not mention the need to perform termination bioassay within 14 days. 2017 annual ALARA audit documents an ongoing problem with collecting termination bioassays for contractor personnel. While previous corrective actions have been partially successful, they have not eliminated the problem.	Revise SOP 14 to require a termination bioassay within 14 days of termination.		HMC	X				
7	A QC program for bioassay measurements should be established and incorporated in each uranium mill bioassay program. The programs should be consistent with the method recommended in Section 4.0, Quality Assurance and Quality Control for Radiobioassay Service Laboratory, of consensus standard ANSI/HPS N13.30-2011, "Performance Criteria for Radiobioassay." The minimum testing levels for uranium in the body through direct and indirect bioassay should be at or greater than 0.81 nano-Ci (30 Bq) and 1,000 nanograms, respectively. A program that supports estimates from urinalysis data with the in vivo determinations, or vice versa, is recommended, but not required	Partial	QC mentioned in SOP 14 but not much detail.	SOP 31 should be modified to include more detailed QC requirements.			X	X			
Regulatory Guide 8.31 (Rev 1)											
2.1	The RSO should have both the responsibility and the authority, through appropriate line management, to suspend, postpone, or modify any work activity that is unsafe or potentially a violation of the NRC's regulations or license conditions, including the ALARA program. It is recommended that management delegate this responsibility and authority directly to the RSO. The RSO may have other safety-related duties, such as responsibility for programs of industrial hygiene and fire safety, but should have no direct production-related responsibility.	No	RSO not specifically given this authority. Anyone can stop work if work is unsafe. Unsafe acts or deficiencies are reported to the Crew Foreman or RST, not the RSO per RPPM, para. 4.2.3.	The PGD 1, PGD 4 and the RPPM should be modified to give the RSO specific authority to stop work. Also modify the RPPM to ensure that all unsafe acts or deficiencies should be reported to the RSO, not just to the Closure Manager and the RP Technician.		HMC	X				
2.2	Written standard operating procedures should be established for all activities that involve handling, processing, or storing radioactive materials. All such procedures should include consideration of pertinent radiation safety practices.	Partial	Not specifically stated. SOPs 15 - Post Treatment Tank (SP2) Water Sampling, Analysis and Reporting Requirements, 24 - Zeolite Water Treatment Plant (300 gpm) - General Operations, SOP 25 - Zeolite Water Treatment Plant (1000 gpm) - General Operations require analysis for uranium concentrations but no procedure provided for performing analysis.	There is a requirement in SOP 15, 24 and 25 to perform an analysis for uranium concentrations in the water. A written procedure should be included in the Manual of Standard Practices for this analysis.		HMC	X				
2.2	Written procedures should also be established for such activities as health physics monitoring, sampling, analysis, and instrument calibration. An up-to-date copy of each written procedure, including accident response and radiological fire protection plans, should be kept accessible to all employees.	Partial	Very weak procedure. No discussion of brush or wildland fires. Should call 911 for any type fire. No sure where procedures are located	The SOP on firefighting should be modified to include more discussion of wildland fire procedures since this is most likely the fire hazard. The contacting of the local fire department should be immediate, not after it gets out of control.		HMC	X				
2.2	All written procedures involving radioactive material control should be compiled in a manual that allows documentation of each revision and its date.	Partial	Individual procedures are not signed and dated. No sure all procedures (operation of RO unit) are in the Manual. SOPs 1 - Emergency Response Procedures, 2 - Procedure for Conducting a Field Level Risk Assessment (FLAR), 3 - Procedure for Conducting a Formal Risk Assessment (FRA), 5 - General Work & Maintenance Procedure, 6 - Firefighting Procedure indicate revision number and dates.	Ensure all site procedures are included in the SOP Manual and are controlled. Provide a date and signature of the RSO for each of the procedures in the in the Manual for Standard Practices that involve radioactive material.		HMC	X				
2.2	To ensure that proper radiation protection principles and techniques are being applied, written procedures for all activities should be reviewed and approved in writing by the RSO before being implemented and whenever a change in a procedure is proposed.	No	Procedures are not signed by RSO in manual.	Have the RSO review and sign all radiological procedures when written or changed.		HMC	X				
2.2	The RSO should review all existing operating procedures at least annually to ensure the procedures do not violate any newly established radiation protection practices.	No	Referenced as completed in 2017 annual ALARA report, but no records found	Have the RSO document the specific procedures he reviews annually.		HMC	X				
2.2	The RSO should indicate by signature the review of each RWP prior to the initiation of work, and the work should be carried out in strict adherence to the conditions of the RWP.	Partial	No signature requirement in SOP, but space is provided on RWP form	Change the SOP to ensure that all RWPs are signed by the RSO or designated alternate. Formally identify the RSO designated alternate in a document.		HMC	X				

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Materials License SUA-1471, Amendment 49 and Other Applicable Regulatory Obligations							Consolidated Deficiency Groupings				
License Condition or Requirement	Requirement	Requirement met?	Comments	Corrective Action Items	Status	Responsible	1	2	3	4	5
2.2	The RSO should designate a member of the radiation safety office staff or a supervisory member of the production staff who has received specialized radiation protection training to review and sign RWPs when the RSO is not available, e.g., during off shifts.	No	No signature requirement and no designate identified.	Change the SOP to ensure that all RWPs are signed by the RSO or designated alternate. Formally identify the RSO designated alternate in a document.		HMC	x				
2.3.1	The RSO and the facility foreman should conduct a weekly inspection of all facility areas to observe general radiation control practices and review required changes in procedures and equipment.	Partial	Not specifically listed under RSO responsibilities, and no frequency provided.	Include RSO or facility foreman attendance and frequency requirements (weekly) in RPPM and SOPs, and create a form to capture completion for records.		HMC	x				
2.3.1	The RSO or designated health physics technician should conduct a daily walk-through (visual) inspection of all work and storage areas of the facility to ensure proper implementation of good radiation safety procedures, including good housekeeping and cleanup practices that would minimize unnecessary contamination.	Partial	If to be performed by RST, this duty should be recognized and delineated in a procedure.	Modify RPPM para. 4.2.8 to require RSO or designated RST to perform daily visual inspections of all work and storage areas, and ensure the inspection is documented per the new records retention policy and procedures.		HMC	x	x			
2.3.1	Problems observed during all inspections should be noted in writing in an inspection logbook or other retrievable record format. The entries should be dated, signed, and maintained on file for at least 1 year.	Partial	For ponds only	Procedures should be modified or an RSO/RST inspection procedure should be developed to ensure the proper activities are being preformed at the a proper times. All observed problems need to be documented per a procedure and maintained per the new records retention policy and procedure.		HMC	x	x			
2.3.1	The RSO should review all violations of radiation safety procedures or other potentially hazardous problems with the resident manager or other mill employees who have authority to correct the problem.	Partial	RSO not notified if violation or incident, only Closure Manager.	Modify PGD 1 to have the RSO notified of any violations or incidents so the RSO can review any violations and corrective actions.		HMC	x				
2.3.2	At least monthly, the RSO should review the results of daily and weekly inspections, including a review of all monitoring and exposure data for the month.	Partial	But no frequency given.	Modify appropriate procedure and RPPM para. 4.2.8 to require the RSO to review the results of the daily and weekly inspections, and the monitoring and exposure data, monthly. Provide for documentation of the inspection per the new retention policy and procedure.		HMC	x	x			
2.3.2	The RSO should provide to the resident manager and all department heads for their review a written summary of the month's significant worker protection activities that contains (1) a summary of the most recent personnel exposure data, including bioassays and time-weighted calculations, and (2) a summary of all pertinent radiation survey records.	Partial	Could not determine who prepared the report.	RPPM para. 2.4 requires the monthly ALARA report be provided to the Closure Manager. This paragraph should be modified to indicate that the RSO is required to prepare the report and specifically indicate what information should be included in the report. These reports should be managed and retained per the new records retention policy and procedure.		HMC	x	x			
2.3.2	Monthly summary reports should be maintained on file and readily accessible for at least 5 years.	Partial	No procedure on record retention requirements found.	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.		HMC	x	x			
2.3.3	The RSO should accompany the annual audit team but should not be a member.	Partial	Only present during opening and closing according to report.	RPPM, para. 4.2.8 should be modified to ensure that the RSO is available for the entire annual ALARA audit, not just the opening and closing. He is not part of the audit team, but should be available to ensure the audit team findings are understood by management.		HMC	x				
2.4.1	The RSO should have at least 4 weeks of specialized classroom training in health physics specifically applicable to uranium mill tailings management. In addition, the RSO should attend refresher training on mill tailings facility health physics every 2 years.	Partial	RPPM requires 1 week not 4 weeks of specialized training. RSO attended 40-hour RSO refresher training for uranium recovery facilities in June 2017 to fulfill the biennial refresher training specified in NRC Regulatory Guide 8.31	The RSO should be scheduled to receive the required 4 weeks (160 hours) of specialized training and the training records and the RSO's resume should reflect this training. Alternately, HMC should submit a license amendment request from this provision intended for a mill site actively processing uranium ores.		HMC			x		
2.4.2	The Health Physics Technician should have (1) an associate degree or 2 or more years of study in the physical sciences, engineering, or a health-related field; at least a total of 4 weeks of generalized training (up to 2 weeks may be on- the-job training) in radiation health protection applicable to uranium mill tailings facilities; and one year of work experience using sampling and analytical laboratory procedures that involve health physics, industrial hygiene, or industrial safety measures to be applied in a mill tailings facility; or (2) a high school diploma; a total of at least 3 months of specialized training (up to 1 month may be on- the-job training) in radiation health protection relevant to uranium mill tailings facilities; and two years of relevant work experience in applied radiation protection.	No	RPPM requirements do not match the RG requirements	The RPPM, para. 3.2.1 requirements should be changed to meet the Reg. Guide requirements or a license amendment request initiated.		HMC	x		x		
2.5	This course of instruction should include the following topics: (1) Fundamentals of Health Protection; **(2) Personal Hygiene at Uranium Mill Tailings Facilities,** (3) Facility-Provided Protection, (4) Health Protection Measurements, (5) Radiation Protection Regulations and (6) Emergency Procedures. [More details for each topic is provided in RG 8.31]	Partial	The current new hire training course does not match the RG requirements	The RPPM, para. 3.2.2 requirements should be changed to meet the Reg. Guide requirements or a license amendment request initiated.		HMC	x		x		
2.5	Documented successful completion of the annual retraining course should also be maintained on file. Retraining should include relevant information that has become available during the past year, a review of safety problems that have arisen during the year, changes in regulations and license conditions, exposure trends, and other current topics.	Partial	RPPM has no requirement for training records retention.	SOP 31 provides an organization for electronic files but does not provide a retention period or disposition for records and files. Develop a records retention program that will identify the records that are generated to meet regulatory requirements, the retention period for each and their disposition once the retention period has been met.		HMC	x	x			
2.5	All new workers, including supervisors, should be given specialized instruction on the health and radiation safety aspects and on the nonradiological hazards of the specific jobs they will perform. This instruction should be in the form of individualized on-the-job training.	Partial	Supervisory and OJT requirements not specified.	The radiation safety training program and RPPM para. 3.2.1 and 3.2.2 should be changed to include the requirement for on-the-job training and define the types of tasks that should be included.			x		x		
2.8	The RSO is responsible for implementing a bioassay program. The frequency adopted and the type of analysis should meet the recommendations in Regulatory Guide 8.22, "Bioassay at Uranium Mills".	Partial	RST not RSO	Change SOP 14 and RPPM, para. 4.5 to ensure the RSO is identified as the responsible individual person for the bioassay program.		HMC	x				
3.4	Provisions should be made for fire alarms, fire extinguishers, fire hydrants, water tanks, and other general firefighting equipment. Emergency procedures and training should include immediate fire control as a priority item. Appropriate caution signs should be posted in areas of fire hazard. Fire detection systems should be checked weekly.	Partial	fire extinguishers only	A hazardous analysis should be performed of the fire fighting capabilities and available equipment. Training should include actual use of fire suppression equipment.		HMC	x		x	x	
3.4	Fire drills should be performed at least semiannually.	No		The record of semi-annual fire drills should be maintained in accordance with the new record retention policy ad procedure.		HMC	x	x			
Email sent to NRC received 3/17/2008 (Response to NRC comments on ER											
4	"The project site, however, has recently started to record the presence, number and frequency of waterfowl occurrences on the existing site evaporation ponds. This is being done on a routine daily inspection basis for the site facilities which include the evaporation ponds."	No	Regarding potential violation of LC 35D, a March 17, 2008 supplemental document to LC indicates that daily waterfowl identification would be performed for EP-3. HMC has been only performing the waterfowl measurements on a weekly basis. NRC indicated this would be a suitable candidate to perform a SERP and maybe switch to only daily during work days or request a license amendment if determined to be needed. HMC indicated that they have immediately resumed daily waterfowl measurements, including weekends.	Current SOP 30 and SOP 23 require daily inspections of all ponds. It would seem that only weekly inspections are being performed according to the records (per NRC inspection results). This procedure should be fully implemented. This task is a SERP candidate to change inspection frequency to each working day versus daily.	SERP candidate to change inspection frequency to each working day versus daily.	HMC	x	x			
1(2)	If greater than 775 gallons per acre per day is found in the EP3 in the leak detection sumps, plans will be initiated within one week to survey for the leakage and repair the liner as needed to stop leakage in excess of the allowable leak rate (ALR).	Partial	SOP 23 should include a section on response to leakage from the ponds to include developing a corrective action plan within 1 week of exceeding the ALR.	SOP 23 should include a section on response to leakage from the ponds to include developing a corrective action plan within 1 week of exceeding the ALR.			x			x	
Ltr sent to NRC dated 9/2/1993 (Modify LC 10 and 35C)											

Appendix B
Crosswalk of NRC License and Other Obligation Gaps

Materials License SUA-1471, Amendment 49 and Other Applicable Regulatory Obligations							Consolidated Deficiency Groupings				
License Condition or Requirement	Requirement	Requirement met?	Comments	Corrective Action Items	Status	Responsible	1	2	3	4	5
	Implement Table 3 of the letter	No	Table 1 "Homestake Environmental Monitoring Program Excluding Groundwater Monitoring (2-93)." 3/7/96 letter removed vegetation and soil sampling from the environmental sampling of Table 1. Table 3 "Homestake Occupational Monitoring Program (8-93)" Table 3 includes weekly alpha surveys in lunchrooms and changing areas, as well as calibration of radiation detection instruments every 6 months.	Implement Table 3 survey and calibration frequencies until a license amendment removes this requirement.			X	X			
10 CFR 19											
19.5	Except where otherwise specified in this part, all communications and reports concerning the regulations in this part should be addressed to the Regional Administrator of the appropriate U.S. Nuclear Regulatory Commission Regional Office listed in Appendix D of part 20 of this chapter. Communications, reports, and applications may be delivered in person at the Commission's offices at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland.	No	Licensee could be depending on LC-40 vs. LC-40 and regs.	Revise appropriate policy and procedures to identify the NRC address for the submittal of written reports. As an alternative, this can be included in the procedure that provides the records retention period or a new document on records and written correspondence in general.		HMC		X			
19.11(a)	Each licensee (except for a holder of an early site permit under subpart A of part 52 of this chapter, or a holder of a manufacturing license under subpart F of part 52 of this chapter) shall post current copies of the following documents: (1) The regulations in this part and in part 20 of this chapter; (2) The license, license conditions, or documents incorporated into a license by reference, and amendments thereto; (3) The operating procedures applicable to licensed activities; (4) Any notice of violation involving radiological working conditions, proposed imposition of civil penalty, or order issued pursuant to subpart B of part 2 of this chapter, and any response from the licensee.	Partial	New official bulletin board procured and mounted, but still needs to post several of these items (or notice of availability per 19.11(d))	Post required information on official bulletin boards. Develop a procedure governing required content of official bulletin boards and their upkeep.		HMC				X	
19.11(d)	If posting of a document specified in paragraphs (a)(1), (2) or (3), or (b)(1) or (2) of this section is not practicable, the licensee or regulated entity may post a notice which describes the document and states where it may be examined.	Partial	New official bulletin board procured and mounted, but still needs to post several of these items (or notice of availability per 19.11(d))	Post required information on official bulletin boards. Develop a procedure governing required content of official bulletin boards and their upkeep.		HMC				X	
19.12(a)	All individuals who in the course of employment are likely to receive in a year an occupational dose in excess of 100 mrem (1 mSv) shall be: (1) Kept informed of the storage, transfer, or use of radiation and/or radioactive material; (2) Instructed in the health protection problems associated with exposure to radiation and/or radioactive material, in precautions or procedures to minimize exposure, and in the purposes and functions of protective devices employed; (3) Instructed in, and required to observe, to the extent within the workers control, the applicable provisions of Commission regulations and licenses for the protection of personnel from exposure to radiation and/or radioactive material; (4) Instructed of their responsibility to report promptly to the licensee any condition which may lead to or cause a violation of Commission regulations and licenses or unnecessary exposure to radiation and/or radioactive material; (5) Instructed in the appropriate response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation and/or radioactive material; and (6) Advised as to the radiation exposure reports which workers may request pursuant to § 19.13	Partial	RPPM and SOPs cover these items at a high level. Items (5) and (6) of 19.12(a) are not clearly discussed.	Review current training programs to ensure that the information required by this requirement are included. The listed policies and procedures should also be reviewed to ensure this information is incorporated.		HMC	X		X		
19.13(a)	Radiation exposure data for an individual, and the results of any measurements, analyses, and calculations of radioactive material deposited or retained in the body of an individual, shall be reported to the individual as specified in this section. The information reported shall include data and results obtained pursuant to Commission regulations, orders or license conditions, as shown in records maintained by the licensee pursuant to Commission regulations. Each notification and report shall: be in writing; include appropriate identifying data such as the name of the licensee, the name of the individual, the individual's social security number; include the individual's exposure information; and contain the following statement:	Partial	Given HMC has no one above 100 mrem in a year, they take the position they do not need to do annual reports other than that reported in the annual ALARA audit which is included in the Annual Report	Reconsider providing an annual report even if no exposure was received per measurements. If any dosimetry was performed, then a report should be given even if the exposure results n zero dose. This information is very useful to workers who might work a other nuclear facilities in the future.						X	
19.13(b)	Each licensee shall make dose information available to workers as shown in records maintained by the licensee under the provisions of 10 CFR 20.2106. The licensee shall provide an annual report to each individual monitored under 10 CFR 20.1502 of the dose received in that monitoring year if: (1) The individual's occupational dose exceeds 1 mSv (100 mrem) TEDE or 1 mSv (100 mrem) to any individual organ or tissue; or (2) The individual requests his or her annual dose report.	Partial	Given HMC has no one above 100 mrem in a year, they take the position they do not need to do annual reports other than that reported in the annual ALARA audit which is included in the Annual Report	Reconsider providing an annual report even if no exposure was received per measurements. If any dosimetry was performed, then a report should be given even if the exposure results n zero dose. This information is very useful to workers who might work a other nuclear facilities in the future. SOP 13 should be modified to explain the process for requesting a record of any worker's exposure and define the requirements of HMC to provide this information. Update Radiation Safety training to reflect the updated requirements of SOP-13 once revised.						X	
19.13(c)(1)	At the request of a worker formerly engaged in licensed activities controlled by the licensee, each licensee shall furnish to the worker a report of the worker's exposure to radiation and/or to radioactive material: (i) As shown in records maintained by the licensee pursuant to § 20.2106 for each year the worker was required to be monitored under the provisions of § 20.1502; and (ii) For each year the worker was required to be monitored under the monitoring requirements in effect prior to January 1, 1994.	Partial	Given HMC has no one above 100 mrem in a year, they take the position they do not need to do annual reports other than that reported in the annual ALARA audit which is included in the Annual Report	Reconsider providing an annual report even if no exposure was received per measurements. If any dosimetry was performed, then a report should be given even if the exposure results n zero dose. This information is very useful to workers who might work a other nuclear facilities in the future. SOP 13 should be modified to explain the process for requesting a record of any worker's exposure and define the requirements of HMC to provide this information. Update Radiation Safety training to reflect the updated requirements of SOP-13 once revised.						X	
19.13(c)(2)	This report must be furnished within 30 days from the time the request is made or within 30 days after the exposure of the individual has been determined by the licensee, whichever is later. This report must cover the period of time that the worker's activities involved exposure to radiation from radioactive material licensed by the Commission and must include the dates and locations of licensed activities in which the worker participated during this period.	Partial	Given HMC has no one above 100 mrem in a year, they take the position they do not need to do annual reports other than that reported in the annual ALARA audit which is included in the Annual Report	Reconsider providing an annual report even if no exposure was received per measurements. If any dosimetry was performed, then a report should be given even if the exposure results n zero dose. This information is very useful to workers who might work a other nuclear facilities in the future. SOP 13 should be modified to explain the process for requesting a record of any worker's exposure and define the requirements of HMC to provide this information.						X	
19.13(d)	When a licensee is required by §§ 20.2202, 20.2203 or 20.2204 of this chapter to report to the Commission any exposure of an individual to radiation or radioactive material, the licensee shall also provide the individual a report on his or her exposure data included in the report to the Commission. This report must be transmitted no later than the transmittal to the Commission.	Partial	Need reporting SOP to capture requirement	Develop an SOP containing a centralized and integrated list of reporting criteria for the site. For each report, identify the criteria/threshold, required content, and addressees as specified in the governing regulations.						X	
19.13(e)	At the request of a worker who is terminating employment with the licensee that involved exposure to radiation or radioactive materials, during the current calendar quarter or the current year, each licensee shall provide at termination to each worker, or to the worker's designee, a written report regarding the radiation dose received by that worker from operations of the licensee during the current year or fraction thereof. If the most recent individual monitoring results are not available at that time, a written estimate of the dose must be provided together with a clear indication that this is an estimate.	Partial	Implementation based on skill of RSO.	Reconsider providing an annual report even if no exposure was received per measurements. If any dosimetry was performed, then a report should be given even if the exposure results n zero dose. This information is very useful to workers who might work a other nuclear facilities in the future. SOP 13 should be modified to explain the process for requesting a record of any worker's exposure and define the requirements of HMC to provide this information. Update Radiation Safety training to reflect the updated requirements of SOP-13 once revised.						X	
19.14(b)	During an inspection, Commission inspectors may consult privately with workers as specified in § 19.15. The licensee, regulated entity, or the licensee's or regulated entity's representative may accompany Commission inspectors during other phases of an inspection.	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				
19.14(c)	If, at the time of inspection, an individual has been authorized by the workers to represent them during Commission inspections, the licensee or regulated entity shall notify the inspectors of such authorization and shall give the workers' representative an opportunity to accompany the inspectors during the inspection of physical working conditions.	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				
19.14(d)	Each workers' representative shall be routinely engaged in NRC-licensed or regulated activities under control of the licensee or regulated entity, and shall have received instructions as specified in § 19.12.	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				
19.14(e)	Different representatives of licensees or regulated entities, and workers may accompany the inspectors during different phases of an inspection if there is no resulting interference with the conduct of the inspection. However, only one workers' representative at a time may accompany the inspectors.	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				

Appendix B
Crosswalk of NRC License and Other Obligation Gaps

Materials License SUA-1471, Amendment 49 and Other Applicable Regulatory Obligations							Consolidated Deficiency Groupings				
License Condition or Requirement	Requirement	Requirement met?	Comments	Corrective Action Items	Status	Responsible	1	2	3	4	5
19.14(f)	With the approval of the licensee or regulated entity, and the workers' representative an individual who is not routinely engaged in licensed or regulated activities under control of the license or regulated entity (for example, a consultant to the licensee, the regulated entity, or the workers' representative), shall be afforded the opportunity to accompany Commission inspectors during the inspection of physical working conditions.	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				
19.14(g)	Notwithstanding the other provisions of this section, Commission inspectors are authorized to refuse to permit accompaniment by any individual who deliberately interferes with a fair and orderly inspection. With regard to areas containing information classified by an agency of the U.S. Government in the interest of national security, an individual who accompanies an inspector may have access to such information only if authorized to do so. With regard to any area containing proprietary information, the workers' representative for that area shall be an individual previously authorized by the licensee or regulated entity to enter that area.	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				
19.15(a)	Commission inspectors may consult privately with workers concerning matters of occupational radiation protection and other matters related to applicable provisions of Commission regulations and licenses to the extent the inspectors deem necessary for the conduct of an effective and thorough inspection.	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				
19.15(b)	During the course of an inspection any worker may bring privately to the attention of the inspectors, either orally or in writing, any past or present condition which he has reason to believe may have contributed to or caused any violation of the act, the regulations in this chapter, or license condition, or any unnecessary exposure of an individual to radiation from licensed radioactive material under the licensee's control. Any such notice in writing shall comply with the requirements of § 19.16(a).	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				
19.15(c)	The provisions of paragraph (b) of this section shall not be interpreted as authorization to disregard instructions pursuant to § 19.12.	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				
19.16(a)	Any worker or representative of workers who believes that a violation of the Act, the regulations in this chapter, or license conditions exists or has occurred in license activities with regard to radiological working conditions in which the worker is engaged, may request an inspection by giving notice of the alleged violation to the Administrator of the appropriate Commission Regional Office, or to Commission inspectors. Any such notice shall be in writing, shall set forth the specific grounds for the notice, and shall be signed by the worker or representative of workers. A copy shall be provided the licensee by the Regional Office Administrator, or the inspector no later than at the time of inspection except that, upon the request of the worker giving such notice, his name and the name of individuals referred to therein shall not appear in such copy or on any record published, released or made available by the Commission, except for good cause shown.	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				
19.20	Employment discrimination by a licensee, a holder of a certificate of compliance issued under part 76 of this chapter or regulated entity subject to the requirements in this part as delineated in § 19.2(a), or a contractor or subcontractor of a licensee, a holder of a certificate of compliance issued under part 76 of this chapter, or regulated entity subject to the requirements in this part as delineated in § 19.2(a), against an employee for engaging in protected activities under this part or parts 30, 40, 50, 52, 54, 60, 61, 63, 70, 72, 76, or 150 of this chapter is prohibited.	Partial	Implementation based on skill of RSO.	The requirements of 10 CFR Part 19 should be identified in a policy statement. This will inform workers of their rights.			X				
10 CFR 21											
21.2(a)	The regulations in this part apply, except as specifically provided otherwise in parts 31, 34, 35, 39, 40, 60, 61, 63, 70, or part 72 of this chapter, to: (1) Each individual, partnership, corporation, or other entity applying for or holding a license or permit under the regulations in this chapter to possess, use, or transfer within the United States source material, byproduct material, special nuclear material, and/or spent fuel and high-level radioactive waste, or to construct, manufacture, possess, own, operate, or transfer within the United States, any production or utilization facility or independent spent fuel storage installation (ISFSI) or monitored retrievable storage installation (MRS); and each director and responsible officer of such a licensee.	No	HMC does not have a Part 21 program. Most small licensees do not understand that it does apply to them, but in a way very different from power reactors or suppliers. Reference NRC Information Notice 91-39 for details on applicability and minimum scope required to implement.	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	Evaluating	HMC	X				
21.5	Except where otherwise specified in this part, written communications and reports concerning the regulations in this part must be addressed to the NRC's Document Control Desk, and sent by mail to the U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001; by hand delivery to the NRC's offices at 11555 Rockville Pike, Rockville, Maryland; or, where practicable, by electronic submission, for example, Electronic Information Exchange, or CD–ROM. Electronic submissions must be made in a manner that enables the NRC to receive, read, authenticate, distribute, and archive the submission, and process and retrieve it a single page at a time. Detailed guidance on making electronic submissions can be obtained by visiting the NRC's Web site at *http://www.nrc.gov/site-help/e-submittals.html*; by e-mail to *MSHD.Resource@nrc.gov*; or by writing the Office of the Chief Information Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001. The guidance discusses, among other topics, the formats the NRC can accept, the use of electronic signatures, and the treatment of nonpublic information. In the case of a licensee or permit holder, a copy of the communication must also be sent to the appropriate Regional Administrator at the address specified in appendix D to part 20 of this chapter.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.6(a)	(1) Each individual, partnership, corporation, dedicating entity, or other entity subject to the regulations in this part shall post current copies of: (i) The regulations in this part; (ii) Section 206 of the Energy Reorganization Act of 1974; and (iii) Procedures adopted pursuant to the regulations in this part. (2) These documents must be posted in a conspicuous position on any premises within the United States where the activities subject to this part are conducted.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.6(b)	If posting of the regulations in this part or the procedures adopted pursuant to the regulations in this part is not practicable, the licensee or firm subject to the regulations in this part may, in addition to posting section 206, post a notice which describes the regulations/procedures, including the name of the individual to whom reports may be made, and states where they may be examined.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.21(a)(1)	Each individual, corporation, partnership, dedicating entity, or other entity subject to the regulations in this part shall adopt appropriate procedures to:(1) Evaluate deviations and failures to comply to identify defects and failures to comply associated with substantial safety hazards as soon as practicable, and, except as provided in paragraph (a)(2) of this section, in all cases within 60 days of discovery, in order to identify a reportable defect or failure to comply that could create a substantial safety hazard, were it to remain uncorrected, and	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.21(a)(2)	Each individual, corporation, partnership, dedicating entity, or other entity subject to the regulations in this part shall adopt appropriate procedures to: (2) Ensure that if an evaluation of an identified deviation or failure to comply potentially associated with a substantial safety hazard cannot be completed within 60 days from discovery of the deviation or failure to comply, an interim report is prepared and submitted to the Commission through a director or responsible officer or designated person as discussed in § 21.21(d)(5). The interim report should describe the deviation or failure to comply that is being evaluated and should also state when the evaluation will be completed. This interim report must be submitted in writing within 60 days of discovery of the deviation or failure to comply.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				

Appendix B
Crosswalk of NRC License and Other Obligation Gaps

Materials License SUA-1471, Amendment 49 and Other Applicable Regulatory Obligations							Consolidated Deficiency Groupings				
License Condition or Requirement	Requirement	Requirement met?	Comments	Corrective Action Items	Status	Responsible	1	2	3	4	5
21.21(a)(3)	Ensure that a director or responsible officer subject to the regulations of this part is informed as soon as practicable, and, in all cases, within the 5 working days after completion of the evaluation described in paragraphs (a)(1) or (a)(2) of this section if the manufacture, construction, or operation of a facility or activity, a basic component supplied for such facility or activity, or the design certification or design approval under part 52 of this chapter: (i) Fails to comply with the Atomic Energy Act of 1954, as amended, or any applicable rule, regulation, order, or license of the Commission or standard design approval under part 52 of this chapter, relating to a substantial safety hazard, or (ii) Contains a defect.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.21(b)	Ensure that a director or responsible officer subject to the regulations of this part is informed as soon as practicable, and, in all cases, within the 5 working days after completion of the evaluation described in paragraphs (a)(1) or (a)(2) of this section if the manufacture, construction, or operation of a facility or activity, a basic component supplied for such facility or activity, or the design certification or design approval under part 52 of this chapter: (i) Fails to comply with the Atomic Energy Act of 1954, as amended, or any applicable rule, regulation, order, or license of the Commission or standard design approval under part 52 of this chapter, relating to a substantial safety hazard, or (ii) Contains a defect.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.21(c)	A dedicating entity is responsible for: (1) Identifying and evaluating deviations and reporting defects and failures to comply associated with substantial safety hazards for dedicated items; and (2) Maintaining auditable records for the dedication process.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.21(d)(1)	A director or responsible officer subject to the regulations of this part or a person designated under § 21.21(d)(5) must notify the Commission when he or she obtains information reasonably indicating a failure to comply or a defect affecting: (i) The manufacture, construction or operation of a facility or an activity within the United States that is subject to the licensing requirements under parts 30, 40, 50, 52, 60, 61, 63, 70, 71, or 72 of this chapter and that is within his or her organization's responsibility; or (ii) A basic component that is within his or her organization's responsibility and is supplied for a facility or an activity within the United States that is subject to the licensing, design certification, or approval requirements under parts 30, 40, 50, 52, 60, 61, 63, 70, 71, or 72 of this chapter.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.21(d)(2)	The notification to NRC of a failure to comply or of a defect under paragraph (d)(1) of this section and the evaluation of a failure to comply or a defect under paragraphs (a)(1) and (a)(2) of this section, are not required if the director or responsible officer has actual knowledge that the Commission has been notified in writing of the defect or the failure to comply.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.21(d)(3)	Notification required by paragraph (d)(1) of this section must be made as follows:(i) Initial notification by facsimile, which is the preferred method of notification, to the NRC Operations Center at (301) 816 - 5151 or by telephone at (301) 816 - 5100 within two days following receipt of information by the director or responsible corporate officer under paragraph (a)(1) of this section, on the identification of a defect or a failure to comply. Verification that the facsimile has been received should be made by calling the NRC Operations Center. This paragraph does not apply to interim reports described in § 21.21(b)(2). (ii) Written notification to the NRC at the address specified in § 21.5 within 30 days following receipt of information by the director or responsible corporate officer under paragraph (a)(3) of this section, on the identification of a defect or a failure to comply.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.21(d)(4)	The written report required by this paragraph shall include, but need not be limited to, the following information, to the extent known: (i) Name and address of the individual or individuals informing the Commission. (ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect. (iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect. (iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply. (v) The date on which the information of such defect or failure to comply was obtained. (vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part. (vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action. (viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees. (ix) In the case of an early site permit, the entities to whom an early site permit was transferred.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.21(d)(5)	The director or responsible officer may authorize an individual to provide the notification required by this paragraph, provided that, this shall not relieve the director or responsible officer of his or her responsibility under this paragraph.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.21 c	Individuals subject to this part may be required by the Commission to supply additional information related to a defect or failure to comply. Commission action to obtain additional information may be based on reports of defects from other reporting entities	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.31	Each individual, corporation, partnership, dedicating entity, or other entity subject to the regulations in this part shall ensure that each procurement document for a facility, or a basic component issued by him, her or it on or after January 6, 1978, specifies, when applicable, that the provisions of 10 CFR Part 21 apply.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.41	Each individual, corporation, partnership, dedicating entity, or other entity subject to the regulations in this part shall permit the Commission to inspect records, premises, activities, and basic components as necessary to accomplish the purposes of this part.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.51(a)	Each individual, corporation, partnership, dedicating entity, or other entity subject to the regulations in this part shall prepare and maintain records necessary to accomplish the purposes of this part, specifically: (1) Retain evaluations of all deviations and failures to comply for a minimum of five years after the date of the evaluation; (2) Suppliers of basic components must retain any notifications sent to purchasers and affected licensees for a minimum of five years after the date of the notification. (3) Suppliers of basic components must retain a record of the purchasers of basic components for 10 years after delivery of the basic component or service associated with a basic component. (4) Applicants for standard design certification under subpart B of part 52 of this chapter and others providing a design which is the subject of a design certification, during and following Commission adoption of a final design certification rule for that design, shall retain any notifications sent to purchasers and affected licensees for a minimum of 5 years after the date of the notification, and retain a record of the purchasers for 15 years after delivery of design which is the subject of the design certification rule or service associated with the design. (5) Applicants for or holders of a standard design approval under subpart E of part 52 of this chapter and others providing a design which is the subject of a design approval shall retain any notifications sent to purchasers and affected licensees for a minimum of 5 years after the date of the notification, and retain a record of the purchasers for 15 years after delivery of the design which is the subject of the design approval or service associated with the design.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				

Appendix B
Crosswalk of NRC License and Other Obligation Gaps

Materials License SUA-1471, Amendment 49 and Other Applicable Regulatory Obligations							Consolidated Deficiency Groupings				
License Condition or Requirement	Requirement	Requirement met?	Comments	Corrective Action Items	Status	Responsible	1	2	3	4	5
21.51(b)	Each individual, corporation, partnership, dedicating entity, or other entity subject to the regulations in this part shall permit the Commission the opportunity to inspect records pertaining to basic components that relate to the identification and evaluation of deviations, and the reporting of defects and failures to comply, including (but not limited to) any advice given to purchasers or licensees on the placement, erection, installation, operation, maintenance, modification, or inspection of a basic component.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.61(a)	Any director or responsible officer of an entity (including dedicating entity) that is not otherwise subject to the deliberate misconduct provisions of this chapter but is subject to the regulations in this part who knowingly and consciously fails to provide the notice required as by § 21.21 shall be subject to a civil penalty equal to the amount provided by section 234 of the Atomic Energy Act of 1954, as amended.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.61(b)	Any NRC licensee or applicant for a license (including an applicant for, or holder of, a permit), applicant for a design certification under part 52 of this chapter during the pendency of its application, applicant for a design certification after Commission adoption of a final design certification rule for that design, or applicant for or holder of a standard design approval under part 52 of this chapter subject to the regulations in this part who fails to provide the notice required by § 21.21, or otherwise fails to comply with the applicable requirements of this part shall be subject to a civil penalty as provided by Section 234 of the Atomic Energy Act of 1954, as amended.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				
21.61(c)	The dedicating entity, pursuant to § 21.21(c) of this part, is responsible for identifying and evaluating deviations, reporting defects and failures to comply for the dedicated item, and maintaining auditable records of the dedication process. NRC enforcement action can be taken for failure to identify and evaluate deviations, failure to report defects and failures to comply, or failure to maintain auditable records.	No	see Part 21.2(a) for details	Develop Part 21 program policy or incorporate minimum required provisions into either PGD 5 – Accident / Incident Reporting Policy, SOP 1 – Emergency Response Procedures, or SOP 21 – HMC Water Spill Reporting and Response Procedure. Will also need to post the required information per Part 21.6(a).	see Part 21.2(a) for details	see Part 21.2(a) for details	X				

Appendix A
Crosswalk of Confirmatory Order Condition Status

Confirmatory Order (28 March 2017) Requirements				Compliance Open Items			
Confirmatory Order Condition	**Requirement**	**Status of Condition?**	**Comments**	**Corrective Action Items**	**Due Date**	**Status**	**Responsible**
1-a	HMC will submit its root cause protocol to an independent third party consultant with expertise in root cause analysis and provide a copy of the independent third party reviewed protocol to the NRC within 120 days of issuance of this Confirmatory Order. The root cause protocol will also be available for review during future inspections.	Satisfied	Per NRC Inspection Report 040-08903/2017-002; "The requirement under Condition 1 of the Order to submit the RCP is considered to be satisfied."				
1-b	The root cause protocol submitted to the NRC will identify any changes made by the independent third party reviewer and include a qualification statement for the independent third party reviewer. This protocol will be used to complete Conditions 2, 3, and 4 of this section.	Satisfied	Per NRC Inspection Report 040-08903/2017-002; "The requirement under Condition 1 of the Order to submit the RCP is considered to be satisfied."				
2-a	Within 30 days of submitting to NRC the root cause protocol in Condition 1 of this section, HMC will use the root cause protocol to analyze the reasons tor the apparent violations documented in the NRC's October 4, 2016 letter.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; submitted RCA via letter dated September 15, 2017 (ADAMS Accession No. ML17263A125). Licensee action of Condition 2-a complete	Per NRC Inspection Report 040-08903/2017-002; submitted RCA via letter dated September 15, 2017 (ADAMS Accession No. ML17263A125). Licensee action of Condition 2-a complete	Pending	Licensee action of Condition 2-a complete. Item will remain open until NRC completes the review of 2-b. NRC PM has this for his review and currently requires no further documents from HMC.	HMC
2-b	HMC will submit any proposed corrective actions to the NRC tor review and approval within 60 days of completing the root cause analyses	Not Complete	Per NRC Inspection Report 040-08903/2017-002; Licensee submitted the corrective action plan for the five apparent violations by letter dated November 14, 2017, (ADAMS Accession Package No. ML17320A118). Condition 2 of the Order will remain open until the NRC has reviewed and approved the licensee's proposed corrective actions.	Per NRC Inspection Report 040-08903/2017-002; Licensee submitted the corrective action plan for the five apparent violations by letter dated November 14, 2017, (ADAMS Accession Package No. ML17320A118). Condition 2 of the Order will remain open until the NRC has reviewed and approved the licensee's proposed corrective actions.	Pending	HMC submitted the corrective action plan for the five apparent violations by letter dated November 14, 2017, (ADAMS Accession Package No. ML17320A118). Condition 2 of the Order will remain open until the NRC has reviewed and approved the licensee's proposed corrective actions. RC PM has this for his review and currently requires no further documents from HMC.	HMC
3	HMC will complete an assessment of all HMC activities to determine whether all activities are authorized and are being conducted in compliance with NRC requirements. The assessment will identify areas where clarity could be added to the license. The assessment will include a written report that identities all areas assessed, the scope of the assessment, the method used to perform the assessment, the results of each assessment and any corrective actions deemed appropriate. This report will identify any proposed changes to the license and procedures. This assessment will include a review of the licensee's Safety Culture, to identify any actions that may be necessary to improve upon or enhance the Safety Culture.	Not Complete	In a letter dated December 26, 2017, NRC approved extension request to September 3, 2018.	Complete Self-Assessment	Due to NRC by 9/3/2018	ENERCON has performed self-assessment of HMC activities	ENERCON
4	HMC will engage an independent third party consultant to review and evaluate HMC's assessments described in Condition 3 of this section. That review will include a written report that identifies all areas assessed, the scope of the assessment, the method used to perform the assessment, the results of each assessment, and any proposed corrective actions. The evaluation will include the effectiveness of any actions proposed by HMC.	Not Complete	In a letter dated December 26, 2017, NRC approved extension request to September 3, 2018.	Submit 3rd party review and report on Self-Assessment	Due to NRC by 9/3/2018	Foxfire Scientific (Matt Arno) has conducted.	Foxfire Scientific
4a	HMC will submit the name and qualifications of the consultant for NRC approval within 30 days of issuance of this Confirmatory Order.	Satisfied	Per NRC Inspection Report 040-08903/2017-002; NRC approved the consultants in correspondence dated April 19 and May 3, 2017, (ADAM Accession Nos. ML17114A106 and ML17138A303).				
4b	HMC will submit a copy of the assessment described in Condition 3 of this section to the independent third party consultant within 120 days of NRC approval of the independent third party consultant.	Not Complete		Submit SA to 3rd party for review/comment.	see 3	The licensee has requested an extension of the due date for the self-assessment to September 3, 2018, (see Condition 3 above). Conditions 4b and 4c remain open and cannot be completed until the self-assessment has been completed.	HMC
4c	HMC will provide a copy of the HMC assessment, the consultant's review report, and any modifications by HMC as a result of the third party consultant's report to the NRC within 120 days of submission of the HMC assessment to the independent third party consultant.	Not Complete		Submit Self Assessment, 3rd party review report of the Self Assessment and any modification by HMC to the NRC.	see 3	The licensee has requested an extension of the due date for the self-assessment to September 3, 2018, (see Condition 3 above). Conditions 4b and 4c remain open and cannot be completed until the self-assessment has been completed.	HMC
4d	NRC will perform an audit of the assessment and the independent third party report and provide NRC audit results in writing, including any recommended changes. HMC will incorporate NRC audit results in the actions described in Condition 5 of this section.	Not Complete		NRC review of the Self Assessment reports.	Pending	NRC audit of SA report	HMC
4e	HMC will maintain copies of all reports at the site for NRC inspection.	Not Complete		Maintain copies of all Self Assessment related reports at the site for NRC review.	Ongoing Action	Ongoing action; won't close until the CO is closed out.	HMC
5-a	Unless otherwise specified, for any changes or additions to the license or procedures resulting from this Confirmatory Order, HMC will either (1) submit to the NRC a license amendment request(s), for NRC approval, or (2) update the appropriate HMC procedure(s) after notification of the NRC. All license amendment requests resulting from this Confirmatory Order will be submitted to the NRC within 60 days of receiving the results of NRC's audit(s).	Not Complete	Per NRC Inspection Report 040-08903/2017-002; "The licensee has not submitted any license amendment requests or notified the NRC of any proposed updates to the procedures beyond the updated procedures directly required by the Order."	Submit any license amendment request(s) for NRC approval, or (2) update the appropriate HMC procedure(s) after notification of the NRC	Ongoing Action	During the 2018-01 inspection, HMC stated that an extension to the due date of the Condition might be necessary	HMC
5-b	All notifications of updates to procedures resulting from this Confirmatory Order will be made to the NRC by the end of calendar year 2018.	Not Complete		Update all procedures as a result of the Self Assessment and from the Confirmatory Order.	Ongoing Action	Will need to extend due date when we extend the due date of 6.a. They aren't tied together, but a single submittal is desired.	HMC
6-a	HMC will submit a revised groundwater CAP to the NRC by the end of calendar year 2018, including amendments to the license approved by that date.	Not Complete		Final approval of groundwater CAP.	Before or at submittal of SA to NRC	HMC made the following statement in its request for extension for the self assessment: *"The absence of a complete self-assessment does mean that, as a practical matter, the appropriate date for the CAP, now set at December 31, 2018, is uncertain; The need for and the length of any extension of the date for submittal of an updated CAP will depend on factors that will only be known by the parties as HMC nears completion of the self-assessment. The parties are not now in a position to modify the CO submittal date for that deliverable, but the NRC should be aware now that HMC may later make a request for amendment of the December 31, 2018 CO update submittal deadline dependent on the results of the self-assessment"*	HMC

Appendix A
Crosswalk of Confirmatory Order Condition Status

Confirmatory Order (28 March 2017) Requirements				Compliance Open Items			
Confirmatory Order Condition	**Requirement**	**Status of Condition?**	**Comments**	**Corrective Action Items**	**Due Date**	**Status**	**Responsible**
6-b	The NRC and HMC will work, aggressively and in good faith, toward a goal of final approval of the groundwater CAP within a year from the date of submittal.	Not Complete			Pending	On-going action by HMC and NRC	HMC
7	HMC will conduct initial and annual refresher training for all individuals (employees and vendors, commensurate with their duties) engaged in licensed activities.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; Condition 7 of the Order is an on-going requirement and will continue to be evaluated during future inspections.	Development of an initial and annual refresher training program for all individuals engaged in Licensed activities.	Training should be completed prior to next NRC Inspection	HMC has developed an annual Regulatory Training Program. Training has been initiated and will continue. Condition 7 of the Order is an on-going requirement and will continue to be evaluated during future inspections.	HMC / Wright
7a	The initial and annual training will address awareness and understanding of regulatory and license No. SUA-1471 requirements, including but not necessarily limited to informing HMC employees of the jurisdiction of the NRC, the Environmental Protection Agency, and the New Mexico Environment Department over the Grants site. The training may be an electronic read and sign format.	Not Complete		Development of an initial and annual refresher training program for all individuals engaged in Licensed activities.	see 7	see 7	HMC
7b	HMC will maintain documentation for each training session conducted. The training documentation will include a summary of the contents of the training and the individuals in attendance. The training documentation will be maintained available for NRC inspection for 5 years after each training session.	Not Complete		Document and retain training records. Develop a records retention policy and procedure.	Ongoing Action	Condition 7 of the Order is an on-going requirement and will continue to be evaluated during future inspections.	HMC
8a	HMC will use the mass balance methodology described in its revised 2012 groundwater CAP submittal, incorporating the issues raised in the Requests for Additional Information provided by NRC, and adapting the methodology for the purpose of completing an analysis of the re-injection system's impact to the time estimate for completion of the groundwater CAP. The analysis will be completed within 120 days of issuance of this Confirmatory Order.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee submitted the impact analysis for the re-injection system by letter dated July 26, 2017, (ADAMS Accession Package No. ML17212A010).	Complete and submit an analysis of the re-injection system's impact to the time estimate for completion of the groundwater CAP.	Action Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee submitted the impact analysis for the re-injection system by letter dated July 26, 2017, (ADAMS Accession Package No. ML17212A010). Licensee action complete, item won't close until NRC audit per Condition 8.c is completed.	HMC/Hydro
8b	No less than 30 days prior to its finalization of the re-injection analysis, HMC will discuss with NRC the methodology, data, and analysis. HMC will provide to NRC all discussion material at least 10 days prior to the discussion.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The NRC is currently performing the audit of the licensee's submitted analysis and the NRC will provide the audit findings to the licensee once they are completed.	HMC will discuss with NRC the methodology, data, and analysis.	Action Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee submitted the impact analysis for the re-injection system by letter dated July 26, 2017, (ADAMS Accession Package No. ML17212A010). Licensee action complete, item won't close until NRC audit per Condition 8.c is completed.	HMC
8c	NRC will per1orm an audit of the analysis, and provide in writing NRC audit results, including any recommended changes. HMC will incorporate NRC audit results in the actions described in Condition 5 of this section.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The NRC is currently performing the audit of the licensee's submitted analysis and NRC will provide the audit findings to the licensee once they are completed. Condition 8 of the Order remains open and can be reviewed once the licensee incorporates NRC's comments into the analysis.	NRC audit of above analysis.	Pending	Per NRC Inspection Report 040-08903/2017-002; The NRC is currently performing the audit of the licensee's submitted analysis and NRC will provide the audit findings to the licensee once they are completed. Condition 8 of the Order remains open and can be reviewed once the licensee incorporates NRC's comments into the analysis. NRC PM has this for his review and currently requires no further documents from HMC.	HMC
9a	As soon as practicable, but not to exceed 30 days from issuance of this Confirmatory Order, HMC will adjust operations to better ensure compliance with the Ground Water Protection Standards (GWPS) in license Condition 35B as required by License Condition 35C (as amended by this Confirmatory Order) and described in HMC's submittal dated January 15, 1998 and the NRC's approval dated March 5, 1998.	Satisfied	Per NRC Inspection Report 040-08903/2017-002; The requirement under Condition 9 of the Order to perform adjustments to the operations of the RO plant and evaluate the procedure required by LC 23 is considered to be satisfied.				
9b	HMC will evaluate the procedure required by license Condition 23 to ensure that the process is adequate to reduce constituent concentrations to values below the GWPS listed in License Condition 35B before discharge.	Satisfied	Per NRC Inspection Report 040-08903/2017-002; The requirement under Condition 9 of the Order to perform adjustments to the operations of the RO plant and evaluate the procedure required by LC 23 is considered to be satisfied.				
10-a	HMC will use the methodology described in NUREG-1620 to analyze the impact of exceedances documented in the NRC's October 4, 2016 letter to HMC. The analysis will be completed within 120 days of issuance of this Confirmatory Order.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The NRC acknowledged receipt of the impact analyses for the exceedances at the RO plant by letter dated August 1, 2017 (ADAMS Accession No. ML17213A29).	Submit exceedance analysis	Action Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee submitted the impact analysis for the re-injection system by letter dated July 26, 2017, (ADAMS Accession Package No. ML17212A010). Licensee action complete, item won't close until NRC audit per Condition 10.c is completed.	HMC
10-b	No less than 30 days prior to its finalization of the impact of exceedances analysis, HMC will discuss with NRC the methodology, data, and analysis. HMC will provide to NRC all discussion material at least 10 days prior to the discussion.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee and the NRC discussed the methodology, data, and analysis with the NRC during a teleconference on June 26, 2017 and during a follow-on meeting on June 27, 2017. Notes summarizing the discussions during the meetings on June 26 and 27, 2017, as well as the licensee's presentation are publicly available (ADAMS Accession No. ML17352B067).	HMC will discuss with NRC the methodology, data, and analysis.	Action Complete	HMC and the NRC discussed the methodology, data, and analysis with the NRC during a teleconference on June 26, 2017 and during a follow-on meeting on June 27, 2017. Notes summarizing the discussions during the meetings on June 26 and 27, 2017, as well as the licensee's presentation are publicly available (ADAMS Accession No. ML17352B067). Licensee action complete, item won't close until NRC audit per Condition 10.c is completed.	HMC
10-c	The NRC will perform an audit of the analysis and provide in writing, the NRC audit results, including any recommended changes. HMC will incorporate NRC audit results in the actions described in Condition 5 of this section.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The NRC is currently performing the audit of the analysis and will provide the audit results in writing once completed. Condition 10 of the Order remains open and can be reviewed once the licensee incorporates NRC's audit results into the analysis.	NRC audit of analysis.	Pending	The NRC acknowledged receipt of the impact analyses for the exceedances at the RO plant by letter dated August 1, 2017 (ADAMS Accession No. ML17213A29). The NRC is currently performing the audit of the analysis and will provide the audit results in writing once completed. NRC PM has this for his review and currently requires no further documents from HMC.	HMC
10-d	In the event of a future non-compliance related to the GWPS, HMC will perform a similar assessment of the impacts of the non-compliance. HMC will report the incident to the NRC in accordance with License Condition 40 within 30 days of receipt of initial and confirmatory laboratory results.	Not Complete	On-going commitment	HMC to perform a similar assessment of the impacts of any future non-compliances.	Action Complete	Exceedance for U in April SP2 composite sample has triggered this on-going Condition. NMED/NRC notifications completed via letter on 5/23/2018, and impact assessment submitted to NRC/NMED per the Condition on 6/4/2018. CO Condition will remain open until closure of the CO.	HMC/Hydro-Engineering

Appendix A
Crosswalk of Confirmatory Order Condition Status

Confirmatory Order (28 March 2017) Requirements				Compliance Open Items			
Confirmatory Order Condition	**Requirement**	**Status of Condition?**	**Comments**	**Corrective Action Items**	**Due Date**	**Status**	**Responsible**
11	Condition 35C of License No. SUA-1471 is amended by this Confirmatory Order to read as follows: "Implement the corrective action program described in the September 15, 1989 submittal, as modified by the reverse osmosis system described in the January 15, 1998 submittal, excluding all sampling and reporting requirements for Sample Point 1, with the objective of achieving the concentrations of all constituents listed in License Condition 358. Composite samples from Sample Point 2 (SP2) will be taken monthly and analyzed for the constituents listed in License Condition 358; the results of these analyses will be reported in the semi-annual and annual reports required by License Conditions 15 and 42."	Satisfied	Per NRC Inspection Report 040-08903/2017-002; Condition 11 of the Order directly modified LC 35C of the licensee's license when the Order was issued on March 28, 2017. Condition 11 of the Order is considered to be satisfied.				
12-a	HMC will develop written procedures to ensure that HMC will sample all required composite samples from Sample Point 2 (SP2) monthly and will report the results of those sample results in the semi-annual and annual reports required by License Conditions 15 and 42. The procedure will include a requirement that if sampling is not performed, a justification will be provided in the semi-annual report required by License Condition 15 for that sampling period, e.g., "inadequate volume of water collected per the appropriate sampling procedure due to the RO plant being inoperable for 25 out of 30 days during that sampling period." For clarity, this reporting requirement does not apply to additional samples taken for operational purposes.	Satisfied	Per NRC Inspection Report 040-08903/2018-001; Written procedures for monthly sampling of Sample Point 2 were submitted to the NRC by letter dated July 26, 2017 (ADAMS Accession No. ML17212A025). The inspectors reviewed the revised procedures during the inspection and determined that they were adequate and will ensure that monthly composite samples are obtained from Sample Point 2. Further, the inspectors noted that the results of the monthly samples were reported in the semi-annual report dated February 22, 2018 (ADAMS Accession No. ML18066A088). Condition 12 of the Order is considered to be satisfied.				
12-b	For any report submitted to NRC, HMC will clearly identify all values at SP2 that exceed GWPS or regulatory or license limits for the COCs identified in License Condition 35B and corrective actions taken, if any, as a result of the exceedances. HMC will submit these procedures to NRC within 120 days of issuance of this Confirmatory Order.	Satisfied	Per NRC Inspection Report 040-08903/2018-001; Written procedures for monthly sampling of Sample Point 2 were submitted to the NRC by letter dated July 26, 2017 (ADAMS Accession No. ML17212A025). The inspectors reviewed the revised procedures during the inspection and determined that they were adequate and will ensure that monthly composite samples are obtained from Sample Point 2. Further, the inspectors noted that the results of the monthly samples were reported in the semi-annual report dated February 22, 2018 (ADAMS Accession No. ML18066A088). Condition 12 of the Order is considered to be satisfied.				
13	Condition 15 of License No. SUA-1471 is amended by this Confirmatory Order to read as follows: "The results of all effluent and environmental monitoring required by this license and regulation shall be reported semi-annually, by March 31 and September 30. All groundwater monitoring data shall be reported per the requirements in License Condition 35."	Satisfied	Per NRC Inspection Report 040-08903/2017-002; Condition 13 of the Order directly modified LC 15 of the licensee's license when the Order was issued on March 28, 2017. The modification provides clarifying language for when the semi-annual effluent and environmental monitoring reports are due. Condition 13 of the Order is considered to be satisfied.				
14-a	HMC will identify sources of supply water, soil and groundwater data, and reports, and will use those data to develop a land application assessment of any impacts due to the use of the irrigation water containing byproduct material to past, current, or foreseeable future uses of the land application areas in Township 12 North, Range 1 O West, Sections 28 (approximately 100 acres), 33 (approximately 150 acres and approximately 24 acres), and 34 (approximately 120 acres).	Not Complete	see 14-f	Submittal of Land Application Assessment to NRC	see 14-f	see 14-f	see 14-f
14-b	The land application assessment will establish background concentrations, remedial action levels (radiological dose and non-radiological risk), and current concentrations of COCs in its license at all areas used for land application.	Not Complete	see 14-f	Submittal of Land Application Assessment to NRC	see 14-f	see 14-f	see 14-f
14-c	The land application assessment will also identify and assess impacts from soil pore water data at the land application areas.	Not Complete	see 14-f	Submittal of Land Application Assessment to NRC	see 14-f	see 14-f	see 14-f
14-d	HMC's land application assessment will be consistent with the requirements of 10 CFR 20.2002 and in accordance with Appendix F1 .4 of NUREG-1620 to demonstrate that the discharge of byproduct material containing both radiological and non-radiological constituents did not impact and will not impact members of the public or the environment.	Not Complete	see 14-f	Submittal of Land Application Assessment to NRC	see 14-f	see 14-f	see 14-f
14-e	In addition, HMC will take immediate action to ensure that the land application areas are not being used to produce crops for human consumption.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; By memorandum dated June 16, 2017, (ADAMS Accession No. ML17328A507), the licensee provided verification that they are not using the former irrigation areas to produce crops for human consumption.	Submittal of Land Application Assessment to NRC	see 14-f	see 14-f	see 14-f
14-f	The land application assessment will be submitted for NRC review and approval within 180 days of issuance of this Confirmatory Order.	Not Complete	Per NRC Inspection Report 040-08903/2018-001; The licensee submitted the land application assessment by letter dated September 25, 2017, (ADAMS Accession No. ML17270A066). A proposed final status survey plan for release of the former land application areas was submitted by letter dated November 14, 2017, (ADAMS Accession No. ML17340A406). The data obtained for the final status survey is intended to augment the existing soil data within the Land Application Impact Assessment report submitted on September 25, 2017. NRC is currently reviewing the September 25, 2017, land application assessment report and is awaiting the results of the additional data obtained for the final status survey report. Once the final status survey data is received, the NRC will perform a confirmatory survey at the former land application areas to support the findings in the NRC staff Safety Evaluation Report.	Submittal of Land Application Assessment to NRC	Pending	Submitted to NRC on Sept. 12th for initial feedback. Revised per NRC feedback. Final version submitted to the NRC on Sept. 25th. Need to mobilize a team for additional soil sampling. Conference call with NRC to discuss status survey plan on Oct. 24th. Tom verified no crops grown on land app areas and documentation prepared for the NRC. ERG submitted "Final Status Survey Plan" for land application areas to the NRC on Nov. 15th. Tom directed ERG to initiate Status Survey of former land application areas. Status Survey work initiated by ERG on Dec. 4th. Work half-way done on Dec. 18th, soil sampling all done, 2 pivot areas scanned, 2 flood areas to be scanned after first of year. Soil sampling and gamma scanning completed. Final Status Surveys completed, development of FSS Report in progress. One small area of elevated gamma radiation and Ra-226 concentrations in surface soil identified on the north edge of the Section 28 Pivot land application area. Cleanup of this "hotspot" has been completed, and confirmatory gamma scanning and soil sampling was performed to verify successful cleanup and allow completion of the FSS Report. The additional sampling will require up to 6 weeks for analytical results to become available for inclusion in the report. NRC (Evans) on site week of 8/27/2018 for NRC confirmatory surveys.	Hydro-Engineering/ERG

Appendix A
Crosswalk of Confirmatory Order Condition Status

Confirmatory Order (28 March 2017) Requirements				Compliance Open Items			
Confirmatory Order Condition	**Requirement**	**Status of Condition?**	**Comments**	**Corrective Action Items**	**Due Date**	**Status**	**Responsible**
15-a	If the results of HMC's analysis discussed in Condition 14 of this section indicates that radiological doses and non-radiological risks are in excess of the NRC-approved remedial action levels, HMC will propose appropriate measures to control both use and access to the impacted areas, a corrective action plan, if necessary, to achieve the NRC-approved remedial action levels, and final status survey plans to demonstrate that the radiological doses and non-radiological risks are below NRC-approved remedial action levels.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; Condition 15 of the Order remains open and can be reviewed once the NRC completes the Safety Evaluation Report for the land application assessment required by Condition 14 of the Order.	Submit Corrective Action Plan for Land Application Areas, if needed	Within 60 days of NRC approval of Land App Assess	Condition will remain open until NRC approval of Land Application Assessment	HMC/Hydro-Engineering
15-b	If corrective actions are needed, HMC will submit corrective actions (that include completion timeframes), for NRC approval, within 60 days of NRC's approval of HMC's land application assessment.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; Condition 15 of the Order remains open and can be reviewed once the NRC completes the Safety Evaluation Report for the land application assessment required by Condition 14 of the Order.	Develop a land application area corrective actions, if necessary.	Pending	The licensee submitted the land application assessment by letter dated September 25, 2017, (ADAMS Accession No. ML17270A066). A proposed final status survey plan for release of the former land application areas was submitted by letter dated November 14, 2017, (ADAMS Accession No. ML17340A406). The data obtained for the final status survey is intended to augment the existing soil data within the Land Application Impact Assessment report submitted on September 25, 2017.	HMC
16	HMC will provide to the NRC an integrated table that sets forth all actions taken pursuant to this Confirmatory Order. An updated integrated table will be provided to the NRC semi-annually, until all license and procedure changes under this Confirmatory Order are completed.	Not Complete	Per NRC Inspection Report 040-08903/2017-002; The licensee submitted the integrated table by letter dated September 27, 2017, (ADAMS Accession No. ML17272A137). Condition 16 of the Order will remain open until all license and procedure changes under the Order are completed.	Submit Integrated Table of Confirmatory Order Actions to the NRC.	9/27/2018	Last submittal on 3/28/2018	HMC/ENERCON