



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 4, 2016

EA-16-114

Homestake Mining Company of California
Grants Reclamation Project
ATTN: Jesse Toepfer, Closure Manager
P.O. Box 98
Grants, NM 87020

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION RECORDS REVIEW,
HOMESTAKE MINING COMPANY OF CALIFORNIA

Dear Mr. Toepfer:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) Office of Nuclear Material Safety and Safeguards in-office records review of License Number SUA-1471 conducted from approximately October 2014 to May 2016. The NRC staff reviewed records dated from 1998 to 2015, including a letter, dated May 14, 2015, sent by Homestake Mining Company (HMC, or the Licensee) to the NRC in response to the NRC's request for information. The purpose of the records review, was to determine whether HMC was in compliance with regulatory and license requirements related to HMC's activities at the Grants, New Mexico site. The enclosed descriptions summarize the results of the records review.

Based on the information identified from the records review, five apparent violations were identified and are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The apparent violations include: (1) implementation of the Reinjection Program in a manner inconsistent with the ground water Corrective Action Program (CAP); (2) discharge of liquid effluents from the Reverse Osmosis (RO) Plant in excess of the site ground water protection standards established in the license; (3) failure to report to the NRC the results of all effluent monitoring required by the license; (4) failure to obtain monthly composite samples as required by the license; and (5) the discharge of liquid effluents containing byproduct material to land application areas without first obtaining NRC approval. The failure to conduct activities in accordance with license or regulatory requirements is significant because it compromises the technical and regulatory considerations on which the NRC based its approval of the license and, thereby impedes the NRC's regulatory responsibilities to evaluate and assure that regulatory requirements important for the protection of public health and safety, and the environment were met. The apparent violations identified by the NRC are listed in Enclosure 1. The bases for the apparent violations are presented in Enclosure 2.

During a telephonic exit briefing conducted on October 3, 2016, Mr. Bruce Watson, of the NRC, discussed these apparent violations with you, as HMC's Closure Manager for the Grants Reclamation Project. Mr. Watson also discussed the significance of the issues, and the need for lasting and effective corrective actions.

As discussed with you, the NRC has not made a final determination of the violations or that an enforcement action will be taken against HMC. Since the NRC has not made a final determination in this matter, a Notice of Violation is not being issued at this time. In addition, please be advised that the characterization of the apparent violations may change as a result of further NRC review.

Before the NRC makes its enforcement decision, we are providing you an opportunity to (1) request a Pre-decisional Enforcement Conference (PEC) or (2) request Alternative Dispute Resolution (ADR). If a PEC is held, it will be open for public observation and the NRC will issue a press release to announce the time and date of the conference. If you decide to participate in a PEC or pursue ADR, please contact Mr. Watson at (301) 415-6221 within 10 days of the date of this letter. A PEC should be held within 30 days and an ADR session within 45 days of the date of this letter.

The conference will afford you the opportunity to provide your perspective on these matters and any other information that you believe the NRC should take into consideration before making an enforcement decision. The decision to hold a PEC does not mean that the NRC has determined that a violation has occurred or that enforcement action will be taken. The PEC is being requested in order to obtain information to assist the NRC in making an enforcement decision. This may include information to determine whether a violation occurred, information to determine the significance of any violation, and information related to any corrective actions taken or planned. For each apparent violation, you should be prepared to address: (1) the reason for the apparent violation, or, if contested, the basis for disputing the apparent violation; (2) the extent of condition for each violation; (3) your perspectives on the potential and actual safety consequences of the violations; (4) the corrective steps that have been taken and the results achieved; and (5) the corrective steps that will be taken to avoid further violations. In addition to the specific responses for each violation, you should be prepared to address what corrective steps HMC is taking, or has taken, such that the NRC should have confidence in future HMC compliance with regulatory requirements. In presenting any corrective actions, you should be aware that the promptness and comprehensiveness of the actions will be considered in assessing any civil penalty for the apparent violations. The guidance in the enclosed excerpt from NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," may be helpful.

Following the PEC, you will be advised by separate correspondence of the results of our deliberations on this matter. A written response to address these apparent violations is not required at this time.

In lieu of a PEC, you may request Alternative Dispute Resolution (ADR) with the NRC in an attempt to resolve this issue. ADR is a general term encompassing various techniques for resolving conflicts using a neutral third party. The technique that the NRC has decided to employ is mediation. Mediation is a voluntary, informal process in which a trained neutral third party (the "mediator") works with parties to help them reach resolution. If the parties agree to use ADR, they select a mutually agreeable neutral mediator who has no stake in the outcome and no power to make decisions. Mediation gives parties an opportunity to discuss issues, clear up misunderstandings, be creative, find areas of agreement, and reach a final resolution of the issues. Additional information concerning the NRC's program can be obtained at <http://www.nrc.gov/about-nrc/regulatory/enforcement/adr.html>. The Institute on Conflict Resolution (ICR) at Cornell University has agreed to facilitate the NRC's program as a neutral

third party. Please contact ICR at (877) 733-9415 within 10 days of the date of this letter if you are interested in pursuing resolution of this issue through ADR.

This letter, and your response, if you choose to submit one, will be placed on the HMC license docket. In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction. Any information forwarded to the NRC should be clearly labeled on the first page with the case reference number: EA-16-114.

Should you have any questions, please contact Mr. Bruce Watson at (301) 415-6221.

Sincerely,

/RA/

Andrea Kock, Deputy Director
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket No. 040-08903
License No. SUA-1471

Enclosures:

1. Apparent Violations
2. Summary of Basis of Apparent Violations Being Considered for Escalated Enforcement
3. NRC Information Notice 96-28

Cc: Homestake Distribution List

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4. Apparent Violations
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Cc: Homestake Distribution List

DISTRIBUTION: See next page

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***See previous concurrence**

OFC	DUWP	MSTR	DUWP	OE	OGC
NAME	MMeyer MM	MBurgess MB	BWatson BW	BFretz	CHair
DATE	6/14/16*	6/14/16*	6/14/16*	9/1/16	9/3/16
OFC	DUWP				
NAME	AKock				
DATE	10/04/16*				

OFFICIAL RECORD COPY

Letter to Jesse Toepfer from Andrea Kock dated October 4, 2016.

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION RECORDS REVIEW,
HOMESTAKE MINING COMPANY OF CALIFORNIA

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Apparent Violations Being Considered for Escalated Enforcement

Apparent Violation 1:

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 40, Appendix A, Criterion 5D requires, in part, that the Licensee submit the proposed ground water Corrective Action Program (CAP) and supporting rationale for Commission approval prior to putting the program into operation. The currently approved ground water CAP is a requirement of Condition 35C of License Number SUA-1471, which, in part, requires the Licensee to implement the ground water CAP described in the September 15, 1989 [ML12222A088] submittal, as modified by the reverse osmosis system described in the January 15, 1998 [ML12291A910] submittal. The September 15, 1989 submittal only allows injection of fresh water, which is considered ground water collected from unimpacted deep aquifers to maintain a hydraulic barrier for plume control purposes. The January 15, 1998, submittal authorizes the injection of water treated by Reverse Osmosis (RO) at the RO plant or a combination of treated water and fresh water, as long as the effluent water from the RO plant contains concentrations of hazardous constituent below the Ground Water Protection Standards (GWPS) listed in Condition 35B of License Number SUA-1471.

Contrary to the above, from 1995 to 2014, the licensee performed ground water corrective actions without prior U.S. Nuclear Regulatory Commission (NRC) approval and inconsistent with the NRC-approved ground water CAP, by means of collection and direct reinjection (i.e., the Reinjection Program) of ground water into the shallow alluvial aquifer, which was neither fresh water nor RO treated water, i.e., impacted water. Specifically, from 1995 to 1998, impacted water was injected into the alluvial aquifer through the use of the reinjection program, which was inconsistent with the approval to use only fresh water injections authorized in the September 15, 1989 submittal. Additionally, from 1998 through 2014, impacted water containing concentrations above the GWPS listed in Condition 35B of License Number SUA-1471 was injected into the alluvial aquifer through the use of the reinjection program, which was inconsistent with additional requirements in the January 15, 1998, submittal to modify the CAP to include the RO Plant.

Apparent Violation 2:

Condition 35C of License Number SUA-1471, in part, requires the Licensee to implement the ground water CAP as modified by the reverse osmosis (RO) system described in the January 15, 1998 submittal from the Licensee, with the objective of returning the concentrations of molybdenum, selenium, thorium-230, uranium, and vanadium to the site standards as listed in license condition 35B. As a condition of the January 15, 1998 approval by the NRC, Sample Point 2 was included as an additional sampling location. Condition 35C of License Number SUA-1471 requires monthly composite samples from the RO plant at Sample Point 2 to be in compliance with the GWPS listed in license condition 35B in order to demonstrate that releases to the environment did not exceed the GWPS.

Contrary to the above, the licensee exceeded the applicable GWPS for uranium and/or molybdenum as specified in Condition 35C of License Number SUA-1471. Specifically, a total of 67 monthly composite samples from the RO Plant were in excess of the applicable GWPS for uranium and/or molybdenum from 1999 through 2014 at Sample Point 2.

Apparent Violation 3:

Condition 15 of License Number SUA-1471 requires, in part, that the results of all effluent monitoring required by the license be reported to the NRC.

Contrary to the above, the licensee did not report the results of all effluent monitoring required by the license to the NRC, in accordance with Condition 15 of License Number SUA-1471. Specifically, the Licensee failed to report any of the effluent results from the RO plant at Sample Point 1 and failed to report any of the results from Sample Point 2 from 2000 through 2014 as required by Condition 15 of License Number SUA-1471.

Apparent Violation 4:

Condition 35C of License Number SUA-1471 requires in part, composite sampling from the RO plant at Sample Point 2 be taken monthly and analyzed for uranium and molybdenum to ensure compliance with the applicable GWPS listed in Condition 35B of License Number SUA-1471. Additionally, Condition 35C requires the Licensee to implement the ground water CAP as modified by the reverse osmosis (RO) system described in the January 15, 1998, submittal, which was approved by license amendment No. 30 on March 5, 1998. License Condition 35C, as approved in License amendment No. 30, requires monthly composite samples from Sample Point 1, which must be analyzed for TDS, SO₄, U, Se, Mo, and Radium-226.

Contrary to the above, the Licensee failed to monitor Sampling Points 1 and 2 at the RO plant multiple times from 1999 through 2014 as required by Condition 35C of License Number SUA-1471. Specifically, the Licensee failed to obtain a total of 10 monthly composite samples from Sample Point 2 between 1999 and 2014 as required by Condition 35C of License Number SUA-1471. Records of sampling at Sample Point 1 identify that only sporadic sampling occurred at Sample Point 1 after August of 2000.

Apparent Violation 5:

10 CFR 40.3 requires, in part, a person subject to the regulations in this part may not dispose of byproduct material or residual radioactive material as defined in this part or any source material after removal from its place of deposit in nature, unless authorized in a specific or general license issued by the Commission under the regulations in this part.

10 CFR 40.41(c) requires, in part, that each person licensed by the Commission pursuant to the regulations in this part shall confine his possession and use of source or byproduct material to the locations and purposes authorized in the license.

10 CFR 40, Appendix A, Criterion 5D requires, in part, the licensee to submit the proposed corrective action program and supporting rationale for Commission approval prior to putting the program into operation, unless otherwise agreed to by the Commission.

10 CFR 20.2002 states, in part, that a licensee may apply to the Commission for approval of proposed procedures, not otherwise authorized in the regulations in this chapter, to dispose of licensed material generated in the licensee's activities. Additionally, the provisions in §20.2002 require compliance with the radiation dose limits for individual members of the public in §20.1301, and a demonstration of compliance with these limits as provided in §20.1302.

Contrary to the above, the Licensee discharged effluents containing byproduct material to land application areas with the intention of accumulating byproduct material within the plants and soils, effectively disposing of the byproduct material without authorization in specific license number SUA-1471 and per the requirements of 10 CFR 40.3. Specifically, in order to dispose of the byproduct material at the land application areas, the Licensee discharged effluents containing byproduct material to unauthorized areas located outside of the licensed site boundary, which is contrary to the requirements found in 10 CFR 40.41(c). This method of disposing of byproduct material was implemented as an unapproved ground water remediation method in support of the operations necessary to continue and complete the ground water corrective action program, which is contrary to 10 CFR 40, Appendix A, Criterion 5D. The licensee failed to obtain approval for the disposal of licensed material in a manner not listed in Subpart K of 10 CFR 20. The licensee discharged effluents containing site derived byproduct material for the unauthorized purpose of disposal, by means of land application for agricultural irrigation, within four fields located outside of the authorized site boundary from 1999 through 2012. The licensee disposed of byproduct material without first obtaining NRC approval per the requirements of 10 CFR 20.2002, which includes an independent assessment of the possible impacts of the proposed method on members of the public, on the environment, and on any other groups or facilities that may be affected by the use of land application for agricultural irrigation.

Summary of Basis of Apparent Violations Being Considered for Escalated Enforcement

1.0 Apparent Violations 1 – 4:

An in-office records review was conducted by NRC staff from approximately October 2014 to May 2016. The records review evaluated Homestake Mining Company of California (HMC, or the Licensee) license documents, on file with the NRC, including license tie-downs listed in the license conditions on license number SUA-1471, annual reports, and semi-annual reports submitted to the NRC pursuant to license conditions. In addition, the NRC staff sent a request for additional information, regarding the ground water Corrective Actions Program (CAP), to the Licensee on March 13, 2015. The Licensee responded by letter dated May 14, 2015, with additional monitoring data. The purpose of the records review was to evaluate HMC's: (1) implementation of the Reinjection Program; (2) discharge of liquid effluents from the Reverse Osmosis (RO) Plant; (3) reporting to the NRC the results of all effluent monitoring required by the license; and (4) monthly composite samples as required by the license.

The NRC staff reviewed the Licensee's "Annual Monitoring Report/ Performance Review," for the calendar years 1995 through 2014. In addition, the NRC staff reviewed the water quality data from the collection wells used to supply the reinjection wells used for the Reinjection Program, which was included in Attachments 3 and 4 by the Licensee in the letter dated May 14, 2015. The information reviewed shows that the Licensee was implementing a Reinjection Program that allowed contaminated ground water to be injected back into the ground water within the alluvial aquifer, as a component of the ground water CAP, without authorization by the NRC from 1995 through at least 2014. The records show that the reinjected water used for the reinjection program contained concentrations of hazardous constituents that exceed the NRC approved GWPS. Specifically, from 1995 to 1998, impacted water was injected into the alluvial aquifer through the use of the reinjection program, which was inconsistent with the approval to use only fresh water injections authorized in the September 15, 1989 submittal. Additionally, from 1998 through 2014, impacted water containing concentrations above the GWPS listed in License Condition 35B was injected into the alluvial aquifer through the use of the reinjection program, which was inconsistent with additional requirements in the January 15, 1998 submittal. The NRC's records review identified that the Licensee performed ground water corrective actions without prior NRC approval, and inconsistent with the NRC-approved ground water CAP, by collecting and directly reinjecting (i.e., the Reinjection Program) impacted ground water into the shallow alluvial aquifer on the site. The reinjected water was neither fresh water nor treated water, but rather water impacted by byproduct material from site operations. This reinjection of untreated impacted site water is inconsistent with the approval to use only fresh water injection as authorized in the CAP submitted to the NRC dated, September 15, 1989 and the approval to use a combination of fresh water and RO water as authorized in the supplement to the CAP submitted to the NRC dated, January 15, 1998. This evidence supports an apparent violation of 10 CFR Part 40, Appendix A, Criterion 5D (Apparent Violation 1).

The monitoring results from Sample Point 2 of the RO Plant provided by the Licensee in Attachment 1 to a letter dated May 14, 2015, in response to the NRC's request for information regarding monitoring results from the RO Plant, shows that, from 1999 through 2014, effluent discharged to the environment from the RO Plant at Sample Point 2 exceeded the GWPS, listed in License Condition 35B, which are also the effluent discharge limits as required by License Condition 35C. The information shows that the licensee exceeded the applicable GWPS for

Enclosure 2

uranium and/or molybdenum specified in License Condition 35B at Sample Point 2 which are also the effluent discharge limits as required by License Condition 35C. Specifically, a total of 67 monthly composite effluent samples from the RO Plant at Sample Point 2 are in excess of the applicable GWPS for uranium and/or molybdenum from 1999 through 2014 at Sample Point 2 (Apparent Violation 2).

The review of the semi-annual reports provided to the NRC, from 2000 through 2014, and the response provided by the Licensee in a letter dated May 14, 2015, in response to the NRC's request for information regarding RO Plant monitoring results, identify that the effluent monitoring results from Sample Point 1 and 2 of the RO Plant were not included in the semi-annual reports. Specifically, the Licensee failed to report any of the effluent results from the RO Plant at Sample Point 1 and 2 from 2000 through 2014 as required by License Condition 15 (Apparent Violation 3).

The monitoring results from Sample Points 1 and 2 of the RO Plant, provided by the Licensee in Attachment 1 to a letter dated May 14, 2015, in response to the NRC's request for information regarding monitoring results from the RO Plant, show that the Licensee failed to obtain a total of 10 monthly composite samples from Sample Point 2 of the RO Plant, as required by LC 35C; and only sporadic sampling were performed at Sample Point 1 between 2000 and 2014 (Apparent Violation 4).

2.0 Apparent Violation 5:

By letter dated February 16, 1999, the Licensee informed the NRC that lands suitable for irrigation will be leased to the public to produce hay for cattle feed. The lands HMC intended for leasing did not adjoin the NRC licensed area and the irrigation supply wells were on HMC property but also outside of the licensed area. The letter does not make reference to the use of 11e.(2) byproduct material nor does it indicate that the residual low level contamination in the alluvial aquifer present at the location of the irrigation wells originated from the NRC licensed Site.

In the February 16, 1999 letter, HMC stated that it had received written approval from the State of New Mexico, Environmental Department (NMED or the State). The letter from the State determined that a discharge plan would not be required for flood irrigation of the proposed lands because the ground water used for agriculture is exempt from the State's discharge plan requirements. The ground water from the alluvial aquifer for the exempt discharge was briefly described in the letter, as stated, "The ground water to be used for irrigation is outside the plume of contamination and outside the area of influence of the ground water remediation system." As such, the State did not approve discharge of contaminated water into unrestricted areas.

By letter dated April 20, 1999, the NRC informed HMC that the use of irrigation supply wells that were not adjacent to the NRC licensed area for irrigation of land which is not part of, or adjacent to the NRC licensed area would not be subject to the NRCs jurisdiction. This determination was based on a single scenario where the water used was unimpacted by site operations and the lands used for irrigation were not part of the NRC licensed boundary.

On September 12, 2000, the State requested additional information about the Land Application Program described in the Licensee's July 14, 2000 discharge plan renewal application for DP-200, which was required by the State. The State identified that the water being used for the

Land Application Program was above NMED standards at that time and above the proposed standards in the DP-200 renewal application. NMED reiterated that the exemption given to HMC in the February 15, 1999, letter was not based on the use of contaminated water for irrigation as a remedial method. The licensee provided a response on August 28, 2002, which stated that "The details of the irrigation program [Land Application Program] will be added to the updated and revised CAP document". The revised CAP was submitted to the NRC in 2006 and then resubmitted in 2012. Neither of the revised CAPs requested to use irrigation as a component of the CAP. Instead, the CAPs stated that the Land Application Program has already been approved by the State and the NRC.

The NRC assessment of the records review identified that the licensee irrigated land outside the licensed area using ground water that was impacted by licensed byproduct material. Land application using water impacted by licensed byproduct material through site operations is not allowed by NRC regulations and was not authorized as a License Condition. This information indicates that the licensee is in violation of 10 CFR 40.3 and 10 CFR Part 20 violations (20.2002, 20.1301, and 20.1302) (Apparent Violation 5).

NRC INFORMATION NOTICE 96-28

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, D.C. 20555

May 1, 1996

NRC INFORMATION NOTICE 96-28: SUGGESTED GUIDANCE RELATING TO
DEVELOPMENT AND IMPLEMENTATION OF
CORRECTIVE ACTION

Addressees

All material and fuel cycle licensees.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to provide addressees with guidance relating to development and implementation of corrective actions that should be considered after identification of violation(s) of NRC requirements. It is expected that recipients will review this information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice are not new NRC requirements; therefore, no specific action or written response is required.

Background

On June 30, 1995, NRC revised its Enforcement Policy, to clarify the enforcement program's focus by, in part, emphasizing the importance of identifying problems before events occur, and of taking prompt, comprehensive corrective action when problems are identified. Consistent with the revised Enforcement Policy, NRC encourages and expects identification and prompt, comprehensive correction of violations.

In many cases, licensees who identify and promptly correct non-recurring Severity Level IV violations, without NRC involvement, will not be subject to formal enforcement action. Such violations will be characterized as "non-cited" violations as provided in Section VI.A of the Enforcement Policy. Minor violations are not subject to formal enforcement action. Nevertheless, the root cause(s) of minor violations must be identified and appropriate corrective action must be taken to prevent recurrence.

If violations of more than a minor concern are identified by the NRC during an inspection, licensees will be subject to a Notice of Violation and may need to provide a written response, as required by 10 CFR 2.201, addressing the causes of the violations and corrective actions taken to prevent recurrence.

In some cases, such violations are documented on Form 591 (for materials licensees) which constitutes a notice of violation that requires corrective action but does not require a written response. If a significant violation is involved, a pre-decisional enforcement conference may be held to discuss those actions.

The quality of a licensee's root cause analysis and plans for corrective actions may affect the NRC's decision regarding both the need to hold a pre-decisional enforcement conference with the licensee and the level of sanction proposed or imposed.

Discussion

Comprehensive corrective action is required for all violations. In most cases, NRC does not propose imposition of a civil penalty where the licensee promptly identifies and comprehensively corrects violations. However, a Severity Level III violation will almost always result in a civil penalty if a licensee does not take prompt and comprehensive corrective actions to address the violation.

It is important for licensees, upon identification of a violation, to take the necessary corrective action to address the noncompliant condition and to prevent recurrence of the violation and the occurrence of similar violations. Prompt comprehensive action to improve safety is not only in the public interest, but is also in the interest of licensees and their employees. In addition, it will lessen the likelihood of receiving a civil penalty. Comprehensive corrective action cannot be developed without a full understanding of the root causes of the violation.

Therefore, to assist licensees, the NRC staff has prepared the following guidance, that may be used for developing and implementing corrective action. Corrective action should be appropriately comprehensive to not only prevent recurrence of the violation at issue, but also to prevent occurrence of similar violations. The guidance should help in focusing corrective actions broadly to the general area of concern rather than narrowly to the specific violations. The actions that need to be taken are dependent on the facts and circumstances of the particular case.

The corrective action process should involve the following three steps:

1. Conduct a complete and thorough review of the circumstances that led to the violation.
Typically, such reviews include:

Interviews with individuals who are either directly or indirectly involved in the violation, including management personnel and those responsible for training or procedure development/guidance. Particular attention should be paid to lines of communication between supervisors and workers.

Tours and observations of the area where the violation occurred, particularly when those reviewing the incident do not have day-to-day contact with the operation under review. During the tour, individuals should look for items that may have contributed to the violation as well as those items that may result in future violations. Reenactments (without use of radiation sources, if they were involved in the original incident) may be warranted to better understand what actually occurred.

Review of programs, procedures, audits, and records that relate directly or indirectly to the violation. The program should be reviewed to ensure that its overall objectives and requirements are clearly stated and implemented. Procedures should be reviewed to determine whether they are complete, logical, understandable, and meet their objectives (i.e., they should ensure compliance with the **current** requirements). Records should be reviewed to determine whether there is sufficient documentation of necessary tasks to provide a record that can be audited and to determine whether similar violations have occurred previously. Particular attention should be paid to training and qualification records of individuals involved with the violation.

2. Identify the root cause of the violation.

Corrective action is not comprehensive unless it addresses the root cause(s) of the violation. It is essential, therefore, that the root cause(s) of a violation be identified so that appropriate action can be taken to prevent further noncompliance in this area, as well as other potentially affected areas. Violations typically have direct and indirect cause(s). As each cause is identified, ask what other factors could have contributed to the cause. When it is no longer possible to identify other contributing factors, the root causes probably have been identified. For example, the direct cause of a violation may be a failure to follow procedures; the indirect causes may be inadequate training, lack of attention to detail, and inadequate time to carry out an activity. These factors may have been caused by a lack of staff resources that, in turn, are indicative of lack of management support. Each of these factors must be addressed before corrective action is considered to be comprehensive.

3. Take prompt and comprehensive corrective action that will address the immediate concerns **and** prevent recurrence of the violation.

It is important to take immediate corrective action to address the specific findings of the violation. For example, if the violation was issued because radioactive material was found in an unrestricted area, **immediate** corrective action must be taken to place the material under licensee control in authorized locations. After the immediate safety concerns have been addressed, timely action must be taken to prevent future recurrence of the violation. Corrective action is sufficiently comprehensive when corrective action is broad enough to reasonably prevent recurrence of the specific violation as well as prevent similar violations.

In evaluating the root causes of a violation and developing effective corrective action, consider the following:

1. Has management been informed of the violation(s)?
2. Have the programmatic implications of the cited violation(s) and the potential presence of similar weaknesses in other program areas been considered in formulating corrective actions so that both areas are adequately addressed?
3. Have precursor events been considered and factored into the corrective actions?

4. In the event of loss of radioactive material, should security of radioactive material be enhanced?
5. Has your staff been adequately trained on the applicable requirements?
6. Should personnel be re-tested to determine whether re-training should be emphasized for a given area? Is testing adequate to ensure understanding of requirements and procedures?
7. Has your staff been notified of the violation and of the applicable corrective action?
8. Are audits sufficiently detailed and frequently performed? Should the frequency of periodic audits be increased?
9. Is there a need for retaining an independent technical consultant to audit the area of concern or revise your procedures?
10. Are the procedures consistent with current NRC requirements, should they be clarified, or should new procedures be developed?
11. Is a system in place for keeping abreast of new or modified NRC requirements?
12. Does your staff appreciate the need to consider safety in approaching daily assignments?
13. Are resources adequate to perform, and maintain control over, the licensed activities? Has the radiation safety officer been provided sufficient time and resources to perform his or her oversight duties?
14. Have work hours affected the employees' ability to safely perform the job?
15. Should organizational changes be made (e.g., changing the reporting relationship of the radiation safety officer to provide increased independence)?
16. Are management and the radiation safety officer adequately involved in oversight and implementation of the licensed activities? Do supervisors adequately observe new employees and difficult, unique, or new operations?
17. Has management established a work environment that encourages employees to raise safety and compliance concerns? Has management placed a premium on production over compliance and safety? Does management demonstrate a commitment to compliance and safety? Has management communicated its expectations for safety and compliance?
18. Is there a published discipline policy for safety violations, and are employees aware of it? Is it being followed?

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact one of the technical contacts listed below.

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