

RESPONSE TO COMMENTS

The Idaho Department of Environmental Quality issued a Notice of Intent to Approve a Class 3 Permit Modification Request on June 28, 2013. The associated comment period ran until August 12, 2013. One set of comments was received during the comment period. A second set was received several days after the comment period closed. The following addresses the applicable portions of both sets of comments received.

1) COMMENT

Extensive changes have been made to the facility, which is the first of its kind, to address this first upset, which occurred after only a few hours of operation during its first "dry" test run. Unfortunately, the draft permit modification is inadequate and does not fully address the changes made at the facility as required by RCRA.

RESPONSE

A purpose of start-up testing is to demonstrate the system works as designed. In this instance, the upset and subsequent analysis indicated significant changes were needed to some components of the IWTU. Additional testing and data analysis will be required before the unit processes SBW. Further testing will be conducted as the unit commences processing of mixed waste to ensure the emissions are less than allowed by the regulations and that the unit can operate in a manner protective of human health and the environment.

This comment alleges inadequacy of the permit and failure to address RCRA requirements, neither of which is supported by the comments received. Therefore, no changes were made to the permit as a result of this comment.

2) COMMENT

Full RCRA Permit Review. As noted in the application package, the permit review and public comments may be limited to focus only on the new modifications. However, 40 CFR 124.5 also provides that the IDEQ Director or the EPA Administrator may review and recommend changes or modifications to the overall permit if needed. These officials should take a hard look at this entire RCRA permit, as it may not have adequate conditions to treat the SBW safely.

RESPONSE

Based on a comprehensive review of the INTEC Liquid Waste Management System (ILWMS) Permit and the modifications requested by the Department of Energy and CH2M-WG-Idaho (the Permittee), the DEQ has determined modifications are necessary. The following represents steps in the modification evaluation process which lead to DEQ's Notice of Intent to Approve the permit modification.

- The Permittee issued a public notice giving information on a proposed Class 3 Permit Modification Request on November 30, 2012. The notice included publication of a legal notice and a mailing to individuals on the facility mailing list. The notice announced a 60 day comment period, the date of a public

informational meeting and gave details on contact persons and how to obtain additional information.

- DEQ received the permit modification request on December 4, 2012.
- The public meeting was held in Idaho Falls on January 10, 2013.
- The Permittee initiated comment period ended on January 28, 2013. No public comments were received.
- During the public comment period DEQ conducted an in-depth review of the ILWMS Permit, the modification request and the supporting documentation. As a result of that review, DEQ determined that the permit modification request was incomplete and could not be approved as submitted. A Notice of Deficiency was prepared and issued to the Permittee on February 8, 2013.
- DEQ received the Notice of Deficiency Response on March 21, 2013.
- DEQ conducted another in-depth review of the ILWMS Permit, the revised modification request and supporting documentation (the review included several site inspections of the IWTU). DEQ determined that the permit modification request was complete and prepared a draft modified permit.
- On June 28, 2013, DEQ issued a Public Notice of the Intent to Approve a Class 3 Permit Modification Request and opened a 45 day public comment period. Simultaneously, DEQ posted the original Permit Modification Request, the Notice of Deficiency, the Notice of Deficiency Response, Draft Modified Permit, and Fact Sheet on the DEQ website. The Fact Sheet gave information on how the ILWMS Administrative Record and related documents could be obtained through the DEQ State Office.
- The public comment period ended on August 12 with comments from one commenter received.

DEQ shares the commenter's concern for the safe operation of the IWTU and ILWMS. During the time this permit action has been ongoing, the Permittee continued to study, analyze and test components of the IWTU. Based on the results of these efforts, the facility submitted an additional permit modification request to DEQ on August 28, 2013. DEQ will conduct an in-depth review of the proposed modification during the facility initiated Public Comment Period. The comment period for the additional modifications will close October 25, 2013. Therefore, although no changes were made to the permit as a result of this comment, the new permit modification request will likely result in additional changes intended to ensure safe, compliant operation of the IWTU.

3) COMMENT

Upset/shutdown impacts on waste treatment. The draft PMR application, at page 1 of Book 1, describes the recent shutdown of the entire IWTU facility:

Integrated Waste Treatment Unit Permit Modifications

On June 16, 2012, the IWTU experienced a Rapid Shutdown System (RSS) event. All operations at the plant were systematically stopped and the plant was shut down.

The RCRA permit modifications are necessary because of physical and operational changes made as a result of the IWTU upset when a surge of carbon plugged and damaged the downstream filter lines.

The changes made at the IWTU include more sensitive shutdown controls, which may result in more frequent process shutdowns at the IWTU. Consequently, permit conditions must be added to handle incompletely treated waste held in vessels during shut-down events.

The modification application and permit do not adequately address how partially or untreated waste may be managed during future upsets or shutdowns. Nor does the permit modification address the procedures necessary to clean air quality control equipment of carbon debris and other contaminants in the event of future excess carbon upsets or shutdowns while the IWTU is operating with mixed hazardous waste.

If the Denitration Mineralization Reformer (DMR) is shut down while mixed waste is being added, how would this residual waste managed and treated? Does a temporary shut-down of the DMR, or Carbon Reduction Reformer, Product Receiver Cooler, Off-Gas Cooler, or other IWTU lines, result in physical changes to the vessel contents that affect treatment efficiency after restarting?

Permit conditions need to be added to address upsets and shutdowns and their impacts on treatment and air quality control efficiency, which have come into sharper focus with the 2012 upset.

RESPONSE

The IWTU is equipped with a nitric acid wash the system that can be used to dissolve waste residuals and flush those residuals back to liquid waste system. These liquids could then be processed when the IWTU is brought back online. This decontamination capability was included in the IWTU design to ensure that the radiation fields within the IWTU equipment can be reduced sufficiently for workers to conduct any necessary repairs. Waste management in the event of a process upset has been addressed.

In the event of a system upset, shutting off the waste feed is the first thing to happen. The IWTU is a system that cannot be partially shut down. If waste feed is shut down, the IWTU will be shut down. The speed of the shutdown will depend on the nature of the event that triggered the shutdown. Various shut down procedures are described in the permit modification documentation. The existing permit conditions, revised shutdown procedures and the risk assessment address the emission issues.

No changes were made to the permit as a result of this comment.

4) COMMENT

RCRA Requirement 40 CFR 270.15 not adequately covered. *Upset/shutdowns such as the 2012 event at the IWTU may leave waste in treatment vessels and lines rendering them incompatible. The modified permit needs to adhere to 40 CFR 270.15 (d) (1) and (2).*

If shutdown/upset events leave mixed waste in vessels and lines, resulting in incompatible waste formation, the permit must include a section to comply with: 40 CFR 270.15 (d): "Where incompatible wastes are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with §§ 264.177 (a) and (b), and 264.17 (b) and (c)."

RESPONSE

IDAPA 58.01.05.004 [40 CFR 260.10] defines Incompatible Waste as:

"a hazardous waste which is unsuitable for:

- (1) Placement in a particular device or facility because it may cause corrosion or a decay of containment materials (e.g., container inner liner or tank walls); or
- (2) Commingling with another waste or material under uncontrolled conditions because the commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, or gases, or flammable fumes or gases."

In the event of a shutdown/upset event waste may remain in the IWTU equipment, vessels, and lines. The equipment, vessels, and lines are designed to contain this waste. The design documents were supported by a confidential business information metallurgical report that addressed the design criteria with respect to the corrosion/decay issue. Commingling of wastes or materials under uncontrolled conditions will not occur when the unit is shut down.

No changes were made to the permit as a result of this comment.

5) COMMENT

Shutdown/upsets may result in the formation of free liquid in the Product Receiver Cooler (PRC) that could be transferred to storage canisters. Such an event needs to be addressed in the permit according to 40 CFR 270.15(b): "(1) For storage areas that store containers holding wastes that do not contain free liquids, a demonstration of compliance with § 264.175(c), including: (1) Test procedures and results or other documentation or information to show that the wastes do not contain free liquids; and (2) A description of how the storage area is designed or operated to drain and remove liquids or how containers are kept from contact with standing liquids."

RESPONSE

The comment does not explain how free liquids may form in the Product Receiver Cooler (PRC). Only hot solids are transferred to the PRC where they are cooled by a flow of nitrogen gas. DEQ does not believe liquids will form in the PRC. Further, the presence of free liquids in the PRC would render the waste transfer equipment inoperable (the pneumatic lift would not lift free liquids or wet agglomerated solids) so free liquids cannot be transferred to the canisters. DEQ does not believe it is necessary for the permit to address the issue of free liquids being placed in the waste canisters.

No changes were made to the permit as a result of this comment.

6) COMMENT

Class 3 Permit Modification not in compliance with 40 CFR 270.42.

40 CFR 270.42 states:

“(c) Class 3 modifications. (1) For Class 3 modifications listed in appendix I of this section, the permittee must submit a modification request to the Director that:

- (i) Describes the exact change to be made to the permit conditions and documents referenced by the permit;*
- (ii) Identifies that the modification is a Class 3 modification;*
- (iii) Explains why the modification is needed; and*
- (iv) Provides the applicable information required by 40 CFR 270.13 through 270.22, 270.62, 270.63, and 270.66.”*

The RCRA applicant needs to comply with 40 CFR 270.62 (b) (2) (ii) Sections F, G, H, I, and J as a result of the modification. Shutdown/upsets are a newly identified concern since the June, 2012 event, resulting in new automatic shutdown systems, new modifications made to the air pollution equipment, new nozzle and burner equipment added, new controls added. None of these changes were incorporated into the application, or into the permit conditions, as required by 40 CFR 270.62, F, G, H, I and J, below:

“(F) Description of automatic waste feed cut-off system(s).

(G) Stack gas monitoring and pollution control equipment.

(H) Nozzle and burner design.

(I) Construction materials.

(J) Location and description of temperature, pressure, and flow indicating and control devices. “

RESPONSE

While 40 CFR § 270.62 is specific to hazardous waste incinerators and the IWTU is not an incinerator, DEQ agrees that components of the incinerator regulations are appropriate for the IWTU and has determined the required information was provided. The information in the Permit Modification Request is supplemental to the existing permit/permit application.

(F) The automatic waste feed cut off system is described in the permit and permit modification request. The IWTU Data Control System (DCS) monitors a wide range of parameters and Table VI-1 sets forth the instrument, the operating condition, and the Waste Feed Cut-off condition.

(G) Stack Gas Monitoring and Pollution Control Equipment. The stack gas monitoring and pollution control equipment is described in the original application. The only change to pollution control devices was the addition of pressure sensors to the HEPA pre-filters that are tied to the AWFCO system. By adding a pressure

differential AWFCO to the HEPA pre-filter, the operator or the data control system will react more quickly in the event of upset conditions.

(H) Nozzle and Burner Design. Information on the nozzle design is a part of the modification request. There is no information on a burner design since the IWTU does not have a burner.

(I) Construction Materials. The only two construction materials to change from the initial permit are the gasket design for the candle filters and the nozzle design which added the ceramic to reduce the rate of nozzle erosion/corrosion. The majority of the metallurgical studies and materials studies in the original IWTU design documents were submitted as, and determined to be, confidential business information.

(J) Location and Description of Temperature, Pressure, and Flow Indicating and Control Devices. The location of instrumentation was set forth in the original permit modification. The location of added devices is presented in the engineering drawings in the permit modification request.

No changes were made to the permit as a result of this comment.

7) COMMENT

Class 3 Permit Modification not in compliance with 40 CFR 270.62 (b) (iii).
Upset/shutdown events may adversely affect treatment efficiency. The applicant failed to address sampling and monitoring of waste streams held up in shutdown/upset events. Also, several changes were made at the IWTU, but these new operating conditions, new emission control equipment, and new shutdown controls were not described or properly permitted as required in the RCRA regulations referenced below. The modified permit needs to be changed to add the new permit conditions.

“(iii) A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis.

(iv) A detailed test schedule for each waste for which the trial burn is planned including date(s), duration, quantity of waste to be burned, and other factors relevant to the Director's decision under paragraph (b)(5) of this section.

(v) A detailed test protocol, including, for each waste identified, the ranges of temperature, waste feed rate, combustion gas velocity, use of auxiliary fuel, and any other relevant parameters that will be varied to affect the destruction and removal efficiency of the incinerator.

(vi) A description of, and planned operating conditions for, any emission control equipment which will be used.

(vii) Procedures for rapidly stopping waste feed, shutting down the incinerator, and controlling emissions in the event of an equipment malfunction.”

RESPONSE

This comment requests that IDAPA 58.01.05.012 [40 CFR §270.62(b)(2)(iii)], the regulatory requirement for the content of an incinerator trial burn plan, be expanded to address upset/shutdown conditions and be universally applied to IWTU operations. The cited regulation is specific to trial burn plans or, in this application, the system performance test plan. The purpose of a Trial Burn or other form of Performance Test is to demonstrate the proposed operating conditions are protective of human health and the environment not to address monitoring and waste management during process upsets. For the purposes of a Performance Test Plan, the response to a process upset is to initiate an automatic waste feed cut-off and/or a system shutdown.

The IWTU is not an incinerator but will be subject to similar performance/emissions testing. A Test Plan was incorporated in an initial permit modification requested in 2006. That plan was revised multiple times. A version of the System Performance Test Plan was Public Noticed on April 17, 2012 and subsequently approved. For planned operation, this Plan includes the information requested by the commenter.

As part of this permit modification process, the System Performance Test Plan has been revised to address: the addition of monitoring equipment; revised operating conditions; and, automatic waste feed cut off parameters. DEQ anticipates it may be necessary for the facility to further revise the System Performance Test Plan as a result of startup testing. The IWTU System Performance Test Plan will be finalized, public noticed, and approved prior to implementation.

No changes were made to this permit as a result of this comment.

8) COMMENT

Personnel Training Inadequate. Applicant needs to comply with 40 CFR 270.62 (b) (vii), as a result of the modifications:

“(vii) Procedures for rapidly stopping waste feed, shutting down the incinerator, and controlling emissions in the event of an equipment malfunction.”

Although there has been a serious upset that resulted in multi-million dollar modifications in the IWTU, including new controls and training, the application and permit do not reflect the changes; 40 CFR 262.34 requires a written training program. Attachment 5; section H of the permit should be modified to reflect new written training to operate newly modified controls and to handle upset conditions.

RESPONSE

IDAPA 58.01.05.012 [40 CFR §270.14(b)(12)] requires the facility have a training outline for both introductory and continuing training to prepare persons to operate or maintain the facility in a safe manner consistent with IDAPA 58.01.05.008 [40 CFR § 264.16]. The training plan satisfies the requirements of the regulations. The comment suggests a level of specificity not required by the regulations. However, DEQ verifies the adequacy and implementation of the training plans during inspections and site visits. DEQ has routinely questioned IWTU operations staff

concerning the what and why of their duties and how they would respond to an emergency. DEQ has interviewed (and observed others interview) control room operators on duties, actions and responsibilities. All control room operators know the emergency stop procedures. Initiation of emergency shutdown is a rehearsed operator action that is engineered to be easily implemented by trained operators.

No changes were made to this permit as a result of this comment.

9) COMMENT

Inadequate Preparedness and Prevention section IIG of draft permit.

With the advent of the IWTU upset and additional risk of shutdown/upset events the Preparedness and Prevention section of the permit should be modified to specifically address these events and prevention of releases as well as the handling of wastes that are not completely treated when left in treatment vessels during shutdown events.

RESPONSE

The Preparedness and Prevention Section of the Permit (Permit Section II.G) and the associated Attachment 6 meet the regulatory requirements for a Preparedness and Prevention Plan. The intent of the Preparedness and Prevention Plan is to maintain the facility to prevent upsets while having the emergency equipment on hand to respond should an issue arise.

The Preparedness and Prevention Plan is not designed to address waste management from upset conditions. The Contingency Plan is designed to stabilize an emergency condition. After the situation is stabilized, the facility would evaluate the nature and extent of any releases and prepare clean-up plans to address the specific circumstances of the event. Wastes generated during clean-up are subject to waste management requirement applicable to generators (IDAPA 58.01.005.006 [40 CFR § 262]).

No changes were made to the permit as a result of this comment.

10) COMMENT

Inadequate Contingency Plan. *The draft permit fails to change the Contingency Plan to reflect the modifications. 40 CFR 264.54 requires that the Contingency Plan be updated and incorporated into the permit if a facility permit is revised. This contingency plan change should address upsets and shutdown events to reflect the new conditions and associated risks at the IWTU (See attachment 7 of Module II).*

RESPONSE

The Contingency Plan must address fire, explosion, or release of hazardous waste constituents which could threaten human health or the environment. The current plan addresses these issues and DEQ believes the proposed modifications make it less likely that the facility will need to implement the Contingency Plan.

No changes were made to the permit as a result of this comment.

11)COMMENT

Add new definition in Permit. Add “upset” or “upset malfunction” to definitions. The term “upset” is used in several areas of the RCRA permit modification package but is not defined.

RESPONSE

The following definition will be added to the permit in the definitions section: “Upset” shall mean an unplanned disruption in the normal operations of any equipment or emissions unit which, unresolved, may lead to excess emissions.

12)COMMENT

Enforceability Section of Permit Inadequate.

Although there is a section in the permit to review enforceable agreements the permit failed to reference them.

The Idaho Settlement Agreement and the INL Site Treatment Plan are enforceable provisions that help drive the treatment of sodium-bearing high-level waste at the INL. The draft permit and fact sheet should reference these enforceable agreements and their applicability to the process. For example, the Site Treatment Plan is an agreement between DOE and its regulators on how the DOE will – in compliance with the laws of the nation and the state – manage hazardous wastes stored on the INL site that can’t be treated and disposed quickly. The Idaho Settlement Agreement establishes timelines for DOE to treat and/or remove specific radioactive and hazardous wastes and spent nuclear fuel now stored at the INL. All of the above agreements are enforceable through penalties established in the agreements and through the courts. The reference of these agreements and their applicability could be added in IA (Effect of Permit) and Ib (Enforceability) of the draft permit.

If the mixed waste destined to be treated in the modified IWTU is not completed in a schedule specified in these other agreements, penalties may be imposed.

RESPONSE

The “Enforceability” Section of the Permit does not review enforceable agreements as the comment indicates. If there were permit conditions based on another federal, state or local law (e.g., the Endangered Species Act), then this section of the permit would discuss those laws. Both the INL Site Treatment Plan and the Idaho Settlement Agreement are negotiated agreements that are enforceable independent of a HWMA operating permit and thus are not included in the “Enforceability” section of the Permit.

No changes were made to the permit as a result of this comment.

13)COMMENT

RCRA permit Modification Schedule conflicts with INL Site Treatment Plan.

The enforceable INL Site Treatment Plan has a schedule that conflicts with the modified permit. The current Site Treatment Plan calls for SBW treatment startup in

the 4th quarter of 2013 (See 2012 Site Treatment Plan Report). This conflict should be addressed in the permit.

RESPONSE

The enforceable dates in the INL Site Treatment Plan do not have a bearing on the basis for approving or denying this permit modification request. DEQ has determined that the permit modification request meets the requirements of the Hazardous Waste Management Act/Resource Conservation and Recovery Act (HWMA/RCRA) and is therefore proposing approval of the modification. If the IWTU startup schedule does not meet the INL Site Treatment Plan requirements then the issue must be addressed through the INL Site Treatment Plan.

No changes were made to the permit as a result of this comment.

Summary

The DOE has drafted a modified RCRA permit that does not address new issues resulting from the June, 2012 upset event. The draft RCRA Modified Permit too often references DOE's vague intent to follow RCRA, but without specifically addressing important operational requirements of RCRA to safely operate this facility. The question of how wastes are handled during and after upsets and shutdowns is not answered. Similarly, DOE did not address how shutdowns and upsets may impact air quality. Several other important issues were missing in the permit package that are required by RCRA.

The IDEQ and EPA should carefully review and consider changes, not just in this modified application as outlined above, but also in the entire Part B permit at this facility.

Summary Response

DEQ has drafted a modified HWMA/RCRA permit for the INTEC Liquid Waste Management System, including the Integrated Waste Treatment Unit (IWTU). The modification not only addresses multiple issues identified in the analysis of the June 12, 2012 upset event(s) but also addresses other issues identified in the follow on in-depth review and analysis of the IWTU. Proposed modifications include: changes to equipment design; adding instrumentation; additional Automatic Waste Feed Cut-Off criteria; modifications to the data acquisition and control system; and more.

The comment suggests that the permit fails to address how wastes are handled during and after upsets and shutdowns. The control room operators are trained to maintain the IWTU within the approved operating envelope. If the IWTU cannot be maintained in the permitted operating range the operator must begin system shut down. If the operator fails to act and an operating limit is reached then the data control system takes over and triggers an automatic waste feed cut-off. If necessary, the waste feed tank can be drained back to CPP-659 or all the way back to the Tank Farm Facility. The permit contains specific conditions for operating the pollution control components of the IWTU in the event of an upset. The nature of the upset determines the response to the upset.

It is likely that waste will remain in IWTU components during a shutdown. This too is addressed in the permit. If waste remains in a component then the unit is subject to the

HWMA/RCRA inspection requirements for storage (as a tank, container, or ancillary equipment). Should a component require maintenance before the IWTU can be brought back online, the components within the containment walls may be individually flushed with nitric acid with the flush solution going for later processing in the IWTU. Any component flushed with acid will still be subject to the applicable HWMA/RCRA inspection requirements.

The commenter stated that the facility has not addressed how shutdowns and upsets may impact air quality. The "Risk Assessment for Air Emissions from the Integrated Waste Treatment Unit and INTEC Liquid Waste Management System" (Appendix D.6 of the Public Notice Package) addresses emissions and risks associated with system upset. Current risk assessment includes estimates of emissions predicted for the IWTU. The data from the System Performance Test will be used to confirm or deny the contention that the IWTU can be operated in a manner that is protective of human health and the environment.

The entire permit has been reviewed and the proposed modification addresses those issues identified and resolved as of the March, 2013 Response to the Notice of Deficiency.

Since March, IWTU personnel have continued to study, review and test (using mock-ups and simulators) all aspects of the IWTU. These efforts have identified additional concerns with the planned IWTU operation that must be addressed through the permit modification process. Therefore, the Permittee (DOE and CH2M-WG-Idaho) have prepared and submitted another permit modification request to address these new concerns. DEQ believes this effort is appropriate because the successful operation of the unit is the responsibility of the Permittee while ensuring environmental compliance is DEQ's responsibility.

No changes were made to this permit as a result of this comment.