November 18, 2014

To: **Mayor Bemrich and City Council**

From: **David Fierke, City Manager**

Subject: **John W Pray Water Treatment Plant – Risk Management Plan Agreement for Engineering Services HDR Engineering, Inc.**

ACTION: **For vote Monday, November 24, 2014**

Brief History

On August 27-28, 2013, a representative of the U.S. Environmental Protection Agency, Region 7 (EPA) inspected the City's John W Pray Water Treatment Plant (WTP). The inspection was conducted to determine if the City's WTP was in full compliance with the requirements of the Clean Air Act and other applicable statues and regulations.

Following this inspection the City received a letter dated March 14th, 2014 detailing 24 deficiencies with the WTP's Risk Management Plan (RMP). The City followed up with the EPA and set a schedule to correct these deficiencies by July 2015 with a goal to avoid potential fines.

Due to the schedule allotted by EPA, the City reached out to five professional firms for Statements of Qualifications (SOQ) and Fee Proposals. Those firms were: McClure Engineering, HDR Engineering, HR Green, Snyder, and US Water. The City received only one proposal from HDR Engineering. Other firms that did not submit a proposal referenced either a lack of qualifications or staff availability.

Analysis of Issue

The selection committee included David Fierke, City Manager, John Horrell, WTP Superintendant and Tony Trotter from the Engineering Dept. The committee reviewed the SOQ submitted by HDR Engineering. The committee believes that HDR is fully capable of bringing the City into full compliance with EPA's regulations based on their recent efforts doing the same with municipalities such as: Cedar Rapids, Lincoln NE, Sioux Falls, SD among others.

Budget Impact

HDR Engineering, INC estimated their fees to be $59,520.00 based on the description of services that were provided. This cost is a starting point for negotiations as the final contract scope is developed.

Strategic Plan Impact

Policy D.8.8: The city shall work cooperatively with other governmental agencies to create and maintain a safe and secure environment for all residents and businesses.

Impact on Existing Plans

This project has no impact on existing plans and will be funded out of the Water Utility Fund.

Staff Conclusions / Recommendations

It is our recommendation for Council to direct staff to develop a contract with HDR Engineering and for that contract to be brought before the City Council at its next meeting.

Alternatives

NA

Implementation and Accountability

The Water Treatment Plant staff along with Engineering will be responsible for oversight of this project.

Signed	Approved
	
Tony Trotter, P.E. Project Engineer	David R. Fierke City Manager

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

JAN 14 2014

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Article Number: 7006 2760 0000 8648 4970

John Horrell
Water Plant Superintendent
City of Fort Dodge Iowa
819 1st Avenue South
Fort Dodge, IA 50501

Dear Mr. Horrell:

RE: John W. Pray Water Treatment Plant
600 Phinney Park Drive Fort Dodge, IA

Case Number: 13IA0827

On August 27-28,2013, a representative of the U.S. Environmental Protection Agency, Region 7 ("EPA") inspected your facility. The inspection was conducted to determine John W. Pray water Treatment Plant's compliance with the requirements of the Clean Air Act, specifically with the Risk Management Program, 40 C.F.R. Part 68, which implements Section 112(r)(7), and other applicable statutes and regulations. A copy of the inspection report is enclosed, without attachments.

The questions below are provided to assist you if you choose to submit a written response to EPA regarding the preliminary findings identified in the inspection report. This is an opportunity for you to provide to EPA any information that you believe is relevant to these preliminary findings and your efforts to return to compliance with the regulatory requirements. EPA will consider information submitted by you in determining our enforcement response to the findings identified at your facility.

The following types of information assist EPA in determining whether your facility has satisfactorily addressed the findings:

1. Description of any actions taken by your facility to correct the findings identified in the inspection report and/or a schedule for completing the necessary corrective actions for each numbered finding, including the date the finding was corrected.

2. Photos of corrected findings, where applicable (for example, photographs of properly labeled piping), indicating the number of the finding to which the photo corresponds.

3. If applicable, any receipt, bill of sale, authorization for expenditure, or paid-in-full notification to verify that findings were corrected, indicating the number of the finding to which this documentation corresponds.

4. If different or new procedures are put in place to prevent the same or similar findings, descriptions of those procedures.

Please be aware that EPA reserves its right to pursue appropriate enforcement actions, including penalties, for findings discovered as a result of the inspection, regardless of whether the findings were subsequently corrected.

If you wish to submit information to EPA, please mail your response to:

George Hess
AWMD/CRIB
U. S. Environmental Protection Agency, Region 7
11201 Renner Blvd.
Lenexa, KS 66219

If there are any questions regarding this report or actions that you may want to take, please contact me, George Hess at 913-551-7540 or hess.george@epa.gov. You may also contact me if you wish to receive a copy of the attachments to the inspection report.

Sincerely,

George Hess
Environmental Scientist
Chemical Risk Information Branch

Enclosure

cc: Don Petty, petty.don@dol.gov (Iowa Department of Labor)

CAA 112(r) INSPECTION REPORT

Name:	John W. Pray Water Treatment Plant	Date:	August 27-28, 2013
Address:	600 Phinney Park Drive, Fort Dodge, IA 50501		
County:	Webster	Phone No:	515.576.6101
Case No:	13IA0827	High Risk:	No
RMP No:	1000 0013 3134	FRS No:	1100 1308 6178
CAA Title V:	No	Program Level:	Program 3
Process:	Public water treatment plant for Fort Dodge, IA and some surrounding areas using chlorine gas as a disinfectant prior to distributing drinking water to residences and businesses.		

SUMMARY OF OBSERVATIONS

A review of John W. Pray Water Treatment Plant documents and process equipment revealed the following deficiencies:

1. **John W. Pray Water Treatment Plant failed to develop a management system to oversee the implementation of the risk management program elements, assign a qualified person or position that has overall responsibility for the RMP, and document persons or positions, other than the qualified individual, who have been assigned responsibilities for implementing elements per 40 CFR 68.15(a-c).**
2. **John W. Pray Water Treatment Plant failed to review and update the offsite consequence analyses at least once every five years per 40 CFR 68.36(a).**
3. **John W. Pray Water Treatment Plant failed to maintain the records for the offsite consequences analyses per 40 CFR 68.39(a-e).**
4. **John W. Pray Water Treatment Plant failed to complete a compilation of written process safety information pertaining to the technology of the process that included process chemistry and consequences of deviation per 40**

CFR 68.65(c)(1)(ii & v).

5. John W. Pray Water Treatment Plant failed to complete a compilation of written process safety information pertaining to the equipment in the process that included documentation that the equipment complies with recognized and generally accepted good engineering practices per 40 CFR 68.65(d)(2).
6. John W. Pray Water Treatment Plant failed to establish a system to promptly address the process hazard analysis team's findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed and communicate the actions to operating, maintenance, and other employees whose work assignments are in the process and who may be affected by the recommendations or actions per 40 CFR 68.67(e).
7. John W. Pray Water Treatment Plant failed to update and revalidate the initial process hazard analysis at least every five years after its completion by a team meeting the requirements in §68.67(d) to assure that the process hazard analysis is consistent with the current process per 40 CFR 68.67(f).
8. John W. Pray Water Treatment Plant failed to retain all PHAs and updates as well as resolutions for the life of the process per 40 CFR 68.67(g).
9. John W. Pray Water Treatment Plant failed to develop and implement written operating procedures that provided clear instructions for safely conducting activities involved in the covered process that addressed each operating phase, operating limits, safety and health considerations, and safety systems per 40 CFR 68.69(a)(1-4).
10. John W. Pray Water Treatment Plant failed to certify annually that the operating procedures are current and accurate per 40 CFR 68.69(c).

11. John W. Pray Water Treatment Plant failed to develop and implement safe works practices to provide for opening process equipment or piping and control over entrance into a stationary source by maintenance, contractors, laboratory, or other support personnel per 40 CFR 68.69(d).

12. John W. Pray Water Treatment Plant failed to provide refresher training at least every three years, and prepare a record which contains the identity of the employee, the date of training and the means used to verify that the employee understood the training per 40 CFR 68.71(b-c).

13. John W. Pray Water Treatment Plant failed to establish and implement written procedures to maintain the ongoing integrity of process equipment per 40 CFR 68.73(b).

14. John W. Pray Water Treatment Plant failed to document each inspection and test that has been performed on process equipment. The documentation did not identify the date of the inspection or test, the name of the person who performed the inspection or test, the serial number or other identifier of the equipment on which the test or inspection was performed, a description of the test or inspection and the results of the inspection or test per 40 CFR 68.73(d)(4).

15. John W. Pray Water Treatment Plant failed to assure that the construction of new plants and equipment, as it is fabricated, is suitable for the process application for which they will be used. There was also a failure to perform appropriate checks and inspections to assure that equipment was installed properly and consistent with design specifications and the manufacturer's instructions per 40 CFR 68.73(f)(1 & 2).

16. John W. Pray Water Treatment Plant failed to establish and implement written procedures to manage changes to process chemicals, technology, equipment, and procedures: and changes to stationary sources that affect a covered process and other elements of 40 CFR 68.75(a - e).

17. John W. Pray Water Treatment Plant failed to perform a pre-startup safety review for modified stationary sources

when the modification was significant enough to require a change in the process safety information and other elements of 40 CFR 68.77(a-b).

18. John W. Pray Water Treatment Plant failed to certify they have evaluated compliance with the provisions of Subpart D at least every three years to verify that procedures and practices developed under this subpart are adequate and are being followed. They also failed to have an audit conducted by at least one person knowledgeable in the process; develop a report of the findings; promptly determine and document an appropriate response to the findings; document that deficiencies have been corrected and retain the two most recent compliance audit reports per 40 CFR 68.79(a-e).

19. John W. Pray Water Treatment Plant failed to prepare an investigation report at the conclusion of an incident investigation that included at a minimum the date of the incident, date investigation began, description of the incident, factors that contributed to the incident and any recommendations resulting from the investigation. They also failed to establish a system to promptly address and resolved any incident report findings; document any resolutions and corrective actions; review the report with all affected personnel and retain any reports for five years per 40 CFR 68.81(d-g).

20. John W. Pray Water Treatment Plant failed to develop a written plan of action regarding the implementation of the employee participation required per 40 CFR 68.83(a).

21. John W. Pray Water Treatment Plant failed to issue hot work permits for such work near covered processes per 40 CFR 68.85(a).

22. John W. Pray Water Treatment Plant failed to develop and implement safe work practices consistent with §68.69(d) to control the entrance, presence, and exit of the contract owner or operator and contract employees in covered process areas per 40 CFR 68.87(b)(4).

23. **John W. Pray Water Treatment Plant failed to provide an executive summary in the RMP that included a brief description of planned changes to improve safety per 40 CFR 68.155(f).**

24. **John W. Pray Water Treatment Plant failed to review and update the RMP at least once every five years from the date of its initial submission or most recent update required by §68.190(b)(2-7) per 40 CFR 68.190(b)(1).**

During the inspection, numerous inquiries were made for each piece of documentation required under the rule. When Mr. Horrell was unsure of what such documentation would look like, he was shown generic examples and formats or was provided a thorough explanation of what information the requested documentation should contain.

Mr. Horrell told me on several occasions that all of the documents he had for the RMP were present on the table at which we were working. I scanned all of the documents that were present on the table. It should be noted that Mr. Horrell was also the Water Plant Superintendent at the time of the initial RMP submission in June 1999.

The water treatment plant is a Program 3 under the Iowa State Plan approved by OSHA. In the other three states in EPA Region VII, a publicly owned water treatment plant that is operated by public employees would be classed as a Program 2 and not a Program 3.

INTRODUCTION

I, Bob Munson, Grantee with the National Older Workers Career Center (NOWCC), representing the U.S. Environmental Protection Agency (EPA), Region VII, inspected John W. Pray Water Treatment Plant (JWPWTP), Fort Dodge, IA on August 27-28, 2013. I spoke with Mr. John Horrell, Water Plant Superintendent, on Tuesday August 7, 2013 to arrange the inspection date and starting time of 0800 hours on August 27, 2013. That same day, I confirmed the inspection with an email to Mr. Horrell. The email had a copy of the checklist attached. The email informed him of the documents that I would review. He was also informed of the right of employees to attend the document review and equipment inspection. I asked that a notice of the inspection be placed for employee review.

An attempt in late May 2013 to schedule the inspection for June 4, 2013 had to be abandoned due to major construction at the facility. Mr. Horrell indicated he would be unable to concurrently oversee the construction, devote time needed for the RMP inspection, and do justice to either.

JWPWTP was selected for inspection based on the lack of submission of a 5-year update due in June 2009. The facility did change the RMP submission in December 2010 but did not update it.

I was accompanied on the inspection by Mr. Ralph Martin, Senior Environmental Health Specialist from the Lincoln/Lancaster County Health Department in Lincoln, NE. Lincoln/Lancaster County is seeking delegation of authority for the CAA 112(r) program. Mr. Martin was attending as a trainee inspector to observe the inspection process for a RMP Program 3 water treatment plant. Permission was asked and received from Mr. Horrell for Mr. Martin to attend.

I conducted the inspection to determine if the facility complies with Section 112(r) of the Clean Air Act (CAA), as amended in 1990. The inspection also included reporting provisions of the Emergency Planning and Community Right to Know Act (EPCRA). I did not determine if the facility complies with the release reporting provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

EPA's regulations describing how these laws are to be implemented are found in the Code of Federal Regulations, Title 40, Part 68 (CAA), 355, 370, and 372 (EPCRA). The law and the implementing regulations 40 CFR 68, Chemical Accident Prevention Program (CAPP) require that the facilities must submit a complete Risk Management Plan (RMP) to the EPA for those regulated chemicals they process in amounts above the applicable threshold quantities after June 21, 1999 and to implement the program described in the RMP.

Attachment #6, pages 1-4 contains the information required by Annex C from EPA 550-K-11-001 (Guidance for Conducting RMP Inspections) that is not contained in this report. The completed RMP submissions and/or corrections for this facility can be found on the DVD in the folder named RMP. The photographs on pages 5-7 are aerial views of the facility and the surround countryside taken from satellite imagery available online. These particular photographic images were taken from Google Earth Pro.

All attachments mentioned in this inspection report are also in a folder on the accompanying DVD. The folder numbers on the DVD correspond to the

attachment numbers. As an example, Attachment #8 is in Folder #8. Because of the volume of documentation received on some elements, some of the material is not included in an attachment however; all of the documentation received relative to that element is in the corresponding folder.

The DVD itself is Attachment #19 and contains a copy of this inspection report, the original documents obtained, documents obtained post inspection by post or email, photographs taken during the inspection, current and past RMP submissions, emails between JWPWTP and the compliance inspector, checklists, and completed forms. There is an additional folder on the DVD named *Compliance Assistance* that contains files I provided to Mr. Horrell as examples of information of RMP elements, links to websites, and calculations of distances to endpoints for various scenarios.

Post inspection I received one email with attachments addressing the preliminary findings of the inspection. The one document and three photographs received can be found in a file on the DVD in the folder named *Post Inspection Docs & Pixs.*

HISTORY OF BUSINESS

The water treatment plant came online in 1970. It was named after a longtime city employee of Fort Dodge, IA who rose through the ranks. His longtime service to the city of Fort Dodge was recognized by naming the water treatment plant in his memory.

The facility underwent modernization and replacement of failing components that was completed with the plant back online by 2001.The project highlights included a new control room, addition of two booster-pumping stations at remote locations, and a chemical feed addition of two new chlorinators.

In 2013, the facility underwent an upgrade that doubled the capacity of the daily output to 10 million gallons per day. This increase was needed due to an agreement to supply the ag-industrial park known as Iowa's Crossroads of Global Innovation. The ag-industrial park includes CJ Bio America, Cargill, and Valero Renewables.

An additional part of the upgrade was a requirement under an administrative order from the Iowa Department of Natural Resources. This order required an operational emergency backup power source for the John W. Pray Water Treatment Plant, including the ground storage tank at the water treatment plant and the booster pump serving the tower west of the water treatment plant, to meet current average daily demand by September 30, 2013. At the time of the inspection, the new equipment was undergoing an initial shakedown and startup.

PERSONS INTERVIEWED AND INDIVIDUAL RESPONSIBILITIES

John Horrell.....Acting Utilities Director
Ralph Martin.....Lincoln/Lancaster County, Senior Env. Health Specialist

OPENING CONFERENCE

I arrived at JWPWTP at 0730 hours, along with Mr. Martin. We attempted to enter by the front door but it was locked. We walked around to the south side of the building and were able to inquire about finding Mr. Horrell. He was summoned and he showed us where we could set up my equipment just off the entrance foyer and next to the main equipment room.

I retrieved my computer and scanner, and entered the front door, which was now unlocked. Although not asked to, we signed in the guest log in the foyer. The last entry in the guest log was for some children who visited some time ago. I did not observe any attempts to control our entrance into the facility.

I set up my equipment and Mr. Martin and I were joined by Mr. Horrell. I discussed briefly the reasons for JWPWTP's selection for a RMP inspection. I presented my credentials and I informed Mr. Horrell that I was with NOWCC and was not a federal employee. I gave a brief summary of the relationship between NOWCC and EPA along with a brief summary of my background. I also provided both Mr. Martin and Mr. Horrell with my business card.

I began the inspection by outlining the process and explaining that I would be requesting some documents to scan for review. I stated I would list those documents on a signed receipt along with any photographs taken during a tour of the physical facilities. I explained that at the completion of the inspection and tour, I would conduct a closing conference to summarize

any findings and have some completed forms, including the document receipt that would require a signature acknowledging receipt.

I reviewed the individual forms and passed examples to Mr. Horrell for him to examine. I told him that JWPWTP would receive the yellow copy of the completed and signed forms at the closing conference. Mr. Horrell signed the Notice of Inspection (Att. #1). I told him that although I would leave a list of preliminary findings with him, additional findings could result once a more thorough review of the documents took place post inspection.

I completed the multimedia screening checklist with input from Mr. Horrell. I explained the multimedia checklist was not a form that required a signature but I would include a scanned copy of the completed form along with other documents for him at the conclusion of the inspection.

Prior to the inspection, I determined JWPWTP would need to file as a Program 3 if it met the threshold quantity of chlorine since the facility was covered by Process Safety Management under the Iowa State Plan approved by OSHA in July 1985. The state plan covers all private and public places of employment with some exceptions. The NAICS code listed in the last RMP filed by JWPWTP was 22131, water supply and irrigation systems.

Based on the likelihood that the facility was a Program 3, I had previously sent a Program 3 checklist to the facility for use in preparing for the inspection. Mr. Horrell had gathered various documents in preparation for the inspection and had them available for us when we set up my equipment.

PROLOGUE

Please note that in order reduce repetitive verbiage in this report, I state in many elements that I was unable to obtain any documentation related to that element. That statement signifies that when the initial request for documentation did not yield results, the question was rephrased, examples were shown where possible, and the request was made a second time including asking if I could look through the notebooks and folder that were present. If nothing was forthcoming after the second request, a third attempt to obtain the materials was made and included asking if there were any other possible locations for any documents to be stored or filed. In a discussion in this report regarding any element, when it is stated that no

documentation was forthcoming for a particular element, it means the process just described was followed in that instance in that at least three requests were made for the documentation. I received no documents from JWPWTP post inspection except for one operating procedure and three photographs that can be found in previously mentioned on page 7 of this report.

Attachment #7 is a document that I was given during the inspection that is the City of Fort Dodge Process Safety Management Plan written to prevent or minimize the consequence of a catastrophic release of the chlorine used at the water treatment plant. This document appears to have been prepared around April 1995 since that is the earliest date that can be found in the document and is located on page 5 of the attachment.

Based on the fonts and page numbering of subsequent RMP documents, the document in Attachment #7 appears to be the basis for the RMP that was first submitted in 1999. The original documents stated that the chlorine was drawn off the ton containers at approximately 100 pounds per square inch (PSI) and piped to a pressure reduction valve where it is reduced to 20 PSI. The current system in use at the facility at the time of the inspection was a vacuum system, not a pressurized system.

TIER II AND OSHA DOCUMENTS

I was given Tier II submissions from 2012 through 2013. The maximum daily amount of chlorine listed for both years was a range code of 4. This range code covers quantities from 10,000 to 99,999 pounds. The report in 2012 listed 10,690 pounds as the maximum daily amount while the 2013 report listed 10,595 pounds. The average daily amount for the same two years was 5,729 pounds for 2012 and 5,924 pounds for 2013. The last RMP, which was submitted in June 2004, listed a maximum intended inventory of 9,000 pounds.

The OSHA 300 log I received covered the year 2011. The cases described in the OSHA log did not indicate any of the injuries recorded involved a release of chlorine.

The Tier II's and OSHA logs have been collated into Attachment #8.

MANAGEMENT SYSTEM

I asked Mr. Horrell what management system JWPWTP had developed to oversee implementation of the risk management program elements and if the facility had assigned a qualified person or position that had overall responsibility for the program elements. He replied that he was responsible for the risk management because of his job as Superintendent of the water treatment plant. I asked him for documentation of this fact particularly regarding his responsibility as Superintendent for the development and implementation of the RMP. He was unable to provide such documentation.

Based on the lack of development of a management system to oversee the implementation of the risk management program elements and the lack of documented assignment of a qualified person, such as Mr. Horrell, as having overall responsibility of the development implementation of the program with clearly documented lines of authority, the following deficiency was found:

1. **John W. Pray Water Treatment Plant failed to develop a management system to oversee the implementation of the risk management program elements, assign a qualified person or position that has overall responsibility for the RMP, and document persons or positions, other than the qualified individual, who have been assigned responsibilities for implementing elements per 40 CFR 68.15(a-c).**

HAZARD ASSESSMENT

Since the reason for selection of JWPWTP as a target for inspection was the lack of submittal of the required five year update, I asked for the documents supporting the offsite consequence analysis (OCA) the facility used for the June 2004 RMP submission. Mr. Horrell asked what the documentation would look like. I described what documents would contain and showed him examples including the OCA information particulars from the 2004 RMP submission for JWPWTP. He told me that he did not have that type of documentation available. Even if the documentation for 2004 had been available, it has been over 9 years since a review and update of the OCA. Due to the lack of documentation available at the facility, there is

no attachment to this report containing any documents regarding Hazard Assessment.

The June 2004 submission used urban topography for the worst-case scenario (WCS) and the alternative-case scenario (ACS). The WCS was the release of the contents of a ton container (2,000 pounds) over 10 minutes with a distance to endpoint of 4.3 miles. The source for the distance was given as EPA OCA Guidance Reference Tables or Equations. The affected population within the 4.3 miles was given as 30,000, which is approximately 5,000 more persons than the population of Fort Dodge. No source for the affected population given in 2004 submission was available.

The ACS was a pipe leak of 24.0 pounds per minute for 10 minutes. The distance to endpoint was given as 0.62 miles and the affected population was listed as 1,700 in the 2004 submission again using the same source for the distance to endpoint and no source for the affected population.

While with Mr. Horrell, I used RMP*Comp to calculate the distances to endpoints using the parameters he gave me. The distance to endpoint for the WCS was 0.9 miles and 0.1 miles for the ACS. Both released were in an enclosed space in direct contact with outside air. I left electronic copies of the RMP*Comp printout with him as part of compliance assistance.

An observation I made was that since chlorine gas is approximately 2.5 times as heavy as atmospheric air, it stays close to the ground and does not rise to any extent; the location of the facility in a river valley below nearby public receptor would probably help mitigate the number of affected person.

I also provided Mr. Horrell a Word document with a hot link to the University of Missouri website that can be used to determine affected populations and one with the link to RMP*Comp. I also explained to Mr. Horrell how to access the free software program, MARPLOT, available from EPA that can be used to determine populations.

Based on the interval of at least nine years between reviews and updates of the OCA and failure to maintain records of the data used to determine population and receptors for the last submission, the following deficiencies were found:

2. **John W. Pray Water Treatment Plant failed to review and update the offsite consequences analyses at least once every five years per 40 CFR 68.36(a).**

3. **John W. Pray Water Treatment Plant failed to maintain the records for the offsite consequences analyses per 40 CFR 68.39(a-e).**

PROCESS SAFETY INFORMATION

Attachment #9 is the collection of documents I was able to obtain from JWPWTP regarding Process Safety Information (PSI) with the exception of some P&IDs that are included in Folder #9 due to space limitations.

What was available from JWPWTP regarding the hazards of the regulated substance was the MSDS for the chlorine used in the water treatment system. The MSDS was from DPC and was dated January 2010. This is the most current revision available from DPC and is available online at their website. The MSDS can be found on pages 1-3 of the attachment.

The information pertaining to the technology of the process I was able to obtain included a block flow diagram, maximum intended inventory and the safe upper and lower limits for operation. The facility was not able to provide compiled written information on the process chemistry or consequences of deviations. Based on the lack of these compiled and written documents, the following deficiency was found:

4. **John W. Pray Water Treatment Plant failed to complete a compilation of written process safety information pertaining to the technology of the process that included process chemistry and consequences of deviation per 40 CFR 68.65(c)(1)(ii & v)).**

Compiled and written information the facility had available on the equipment in the process included materials of construction, P&IDs, electrical classification, relief system and ventilation system designs, design codes and standards employed: and safety systems. These can be found in Attachment #9 with the exception of the P&IDs, which were photographed and are included in Folder #9.

The facility was unable to provide documentation that the equipment in the system complies with recognized and accepted engineering practices. Based on the lack of this documentation, the following deficiency was found:

5. **John W. Pray Water Treatment Plant failed to complete a compilation of written process safety information pertaining to the equipment in the process that included documentation that the equipment complies with recognized and generally accepted good engineering practices per 40 CFR 68.65(d)(2).**

PROCESS HAZARD ANALYSIS

When I requested the process hazard analyses (PHAs) performed at JWPWTP, I was provided the documents contained in Attachment #10 that all have dates from the late 1990s and up to the year 2000. It was difficult to follow the timeline in the documents since the page numbering was neither continuous nor complete.

The original 1999 RMP submission indicated that a PHA was conducted in April 1999. Page 7 of the attachment indicates that a review of the process Safety Management Plan was conducted on July 8, 1999. That same page lists changes that were made to existing equipment since the implementation of the plan in May 1995. I could not find, nor was I provided, any PHA documents with the April 1999 date.

Furthermore, on page 10 of the attachment, the changes made in December 2010 to the 2004 RMP include changing the old PHA completion date from the April 1999 date originally submitted in the 2004 RMP submission to June 2009 that currently appears.

The documentation found on page 4 of the attachment indicates the 1999 review was a What–If methodology. The top of page 7 indicates that those participating in the review were an operator, the plant superintendent, and a safety and health consultant. The questions addressed in the first three pages of the attachment cover the seven elements of §68.67(b). What I was not provided and could not find was the facility's system to address the team's findings and recommendation in a timely manner, document the resolution, document the actions to be taken, development of a written schedule for completing the actions and communication of the actions to affected employees.

Based on the lack of the items listed in the previous paragraph, the following deficiency was found:

6. **John W. Pray Water Treatment Plant failed to establish a system to promptly address the process hazard analysis team's findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed and communicate the actions to operating, maintenance, and other employees whose work assignments are in the process and who may be affected by the recommendations or actions per 40 CFR 68.67(e).**

Even though the 2010 update of the 2004 RMP submission listed a PHA as being conducted in June 2009, there was no evidence or documentation available. Based on the lack of documentation of a 2009 PHA or one conducted between 1999 and 2009, the following deficiency was found:

7. **John W. Pray Water Treatment Plant failed to update and revalidate the initial process hazard analysis at least every five years after its completion by a team meeting the requirements in §68.67(d) to assure that the process hazard analysis is consistent with the current process per 40 CFR 68.67(f).**

If JWPWTP did perform the first PHA in 1999, again in the intervening years between 1999 and 2009 on a 5 year schedule in 2004, and in 2009 as listed in the current RMP submission, the PHAs were not retained. Therefore, the following deficiency was found:

8. **John W. Pray Water Treatment Plant failed to retain all PHAs and updates as well as resolutions for the life of the process per 40 CFR 68.67(g).**

OPERATING PROCEDURES

During the inspection, I was given documents that related to Operating Procedures (SOPs) as part of several other element inquiries. I have pulled those documents together and they are include at the end of this report as Attachment #11. There is no date on any of the documents that would

enable one to determine which is the most current. However, pages 3-5 of the attachment are in the same format and when addressing disconnecting and reconnecting a container, they refer to pressure in the feed line. The facility now uses a vacuum system instead of a pressurized system; these instructions would be considered outdated. They were still available to employees and operators.

The tank change SOP was the only SOP at JWPWTP and it only addresses normal operations and no other operating phases such as emergency shutdown. The only personal protective equipment addressed in any of the SOPs was the use of a hard hat. Based on lack of several of the elements required in operating procedures that provide clear instructions for safely conducting activities involved in the covered process, the following deficiency was found:

9. **John W. Pray Water Treatment Plant failed to develop and implement written operating procedures that provided clear instructions for safely conducting activities involved in the covered process that addressed each operating phase, operating limits, safety and health considerations, and safety systems per 40 CFR 68.69(a)(1-4).**

The SOPs I received had no dates so it was not possible to determine the last time they were reviewed or updated. However, the RMP correction filed in December 2010 for the 2004 submittal indicated that the old review date of the SOPs was in May 1999 and the most recent one was June 2009. Page six of Attachment #11 has these dates highlighted in yellow. No documentation was available for these dates or any other dates to demonstrate that the operating procedures had been reviewed or updated. Based on the lack of annual review and update of the operating procedures found in the RMP submissions, the following deficiency was found:

10. **John W. Pray Water Treatment Plant failed to certify annually that the operating procedures are current and accurate per 40 CFR 68.69(c).**

Post inspection, I received a one-page document from Mr. Horrell that was titled Chlorine Tank Change Part II. While it does clarify a tank change out procedure, it did not address the deficiency stated in #9. The document can be found as page 7 of Attachment #11.

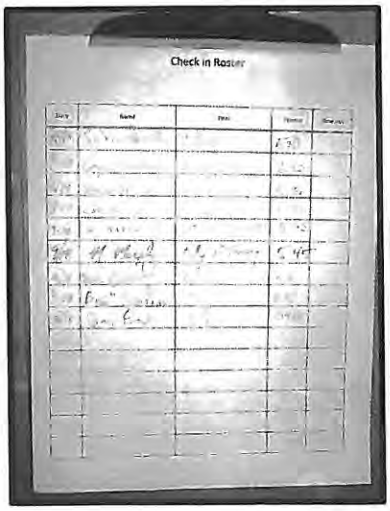
SAFE WORK PRACTICES

I was provided safe work practices for only two operations, lockout/tagout (LOTO) and confined space entry. Those practices are included in Attachment #12.

JWPWTP did not provide safe work practices for opening process equipment and piping or control over support personnel entrance into the stationary source. Based on the lack of these two safe work practices, the following deficiency was found:

11. **John W. Pray Water Treatment Plant failed to develop and implement safe works practices to provide for opening process equipment or piping and control over entrance into a stationary source by maintenance, contractors, laboratory, or other support personnel per 40 CFR 68.69(d).**

Post inspection, I received three photographs attached to the same email that contained the one-page document mentioned in an earlier paragraph. The three photographs appear to be related to a safe work practice to control the hazards possible from support personnel entrance into the stationary source. There were no written documents accompanying these photographs that developed the safe work practice regarding controlling support personnel entrance into the stationary source. The photographs are shown below.



None of the photographs or documents attached to the email addressed opening process equipment or piping.

TRAINING

When I asked about training of operators and employees who are involved in the covered process, I was told that new operators/employees are trained by observing experienced operators and then demonstrating that they can perform the same operation while being supervised. When I asked about documentation required under §68.71(c), I was given the page that appears in this report as Attachment #13 showing the operator obtaining CEUs necessary to keep their level of certification necessary to operate a water treatment plant in the state of Iowa. After talking to Laurie Sharp with the Iowa Department of Natural Resources regarding the training required for the CEUs, it appears that some of the training may address operating procedures in general but would not be specific to a particular water treatment plant.

Without specifics of the training for the CEUs and lack of documents that identify each of the employees involved in the process, date of the training including the initial training by observing an experienced operator, that the employee understood the training, and means to verify that understanding, the following deficiency was found:

12. **John W. Pray Water Treatment Plant failed to provide refresher training at least every three years, and prepare a record which contains the identity of the employee, the date of training and the means used to verify that the employee understood the training per 40 CFR 68.71(b-c).**

MECHANICAL INTEGRITY

JWPWTP did not have written procedures for process maintenance activities with the exception of seven equipment items that were installed in 2001 and for which I was presented the owner manuals. The seven pieces of equipment are listed on page 1 of Attachment #14. The remainder of the equipment in the process such as piping systems and other valves, relief and vent systems including the ventilation system, controls including monitoring devices, sensors, alarms, and interlocks had no written

procedures to maintain the ongoing integrity of the process equipment. The owner's manuals for the seven items mentioned in the first sentence can be found in Folder #14.

Based on the lack of written procedures outlined above, the following deficiency was found:

13. **John W. Pray Water Treatment Plant failed to establish and implement written procedure to maintain the ongoing integrity of process equipment per 40 CFR 68.73(b).**

The facility maintenance personnel and operators are the same individuals and, as such, are trained initially via observation and demonstration. As previously stated, there was no documentation available to demonstrate that maintenance personnel had this training to include identity of the employee, date of training, etc.

When asked if inspections and tests were performed on process equipment, I was told that the system is inspected every day. I asked for the completed daily inspection checklists and received the document that is pages 2-6 of Attachment #14. This document is a log of what maintenance occurred between July 16, 2007 and December 21, 2011, not inspections conducted.

The frequency of inspections is determined by the manufactures recommendations and experience. The only tests performed at the facility are lab tests to check chlorination output versus chlorine levels in the outgoing water.

Based on the stated inspection schedule and the lack of checklists or documents to support those inspections, the following deficiency was found:

14. **John W. Pray Water Treatment Plant failed to document each inspection and test that has been performed on process equipment. The documentation did not identify the date of the inspection or test, the name of the person who performed the inspection or test, the serial number of other identifier of the equipment on which the test or inspection was performed, a description of the test or inspection and the results of the inspection or test per 40 CFR 68.73(d)(4).**

I asked if deficiencies identified by the inspections are corrected before further use or in a timely and safe manner. I was told they were. Without any documentation, I was unable to verify or disprove. I accepted their statement.

The plant had a changeover of equipment from pressure to vacuum in 2001. I asked about quality assurance or how the staff determined that the new equipment was fabricated and suitable for the chlorine process. I was told they depended on the engineering and construction firms to make sure but had no documentation to show that the task was performed. I inquired what checks and inspections were performed to assure that the equipment was installed properly and consistent with design specification and the manufacturer's instructions. Again, I was told they were dependent on the engineering and construction firms but had no verification.

Based on the lack of verification of items in the previous paragraph, the following deficiency was found:

15. **John W. Pray Water Treatment Plant failed to assure that the construction of new plants and equipment as it is fabricated is suitable for the process application for which they will be used. There was also a failure to perform appropriate checks and inspections to assure that equipment was installed properly and consistent with design specifications and the manufacturer's instructions per 40 CFR 68.73(f)(1 & 2).**

When a spare part or maintenance material is received, the operators/maintenance individual making the repair checks the item against what was ordered and in the case of a spare part, is identical to what is being replaced. However, there was no written procedure available for guidance.

MANAGEMENT OF CHANGE (MOC)

I asked for the JWPWTP's written procedure to manage change. The process stated in the Prologue was followed and no procedures or forms were forthcoming.

Based on the lack of any MOC documentation whatsoever, the following deficiency was found:

16. **John W. Pray Water Treatment Plant failed to establish and implement written procedures to manage changes to process chemicals, technology, equipment, and procedures: and changes to stationary sources that affect a covered process and other elements of 40 CFR 68.75(a - e).**

Mr. Howell indicated that they had not needed to manage change since nothing had changed and I pointed out the change from a pressurized chlorine system to a vacuum system that occurred since their original PSM in the mid 1990s and filing of the initial RMP in June 1999.

PRE-STARTUP REVIEW (PSSR)

I asked for the pre-startup safety review that should have been conducted before chlorine was introduced into the new vacuum delivery system since the change would have require a change in the process safety information especially regarding the equipment in the process. I was told the same things as before with regard to the MOC. Based on lack of a PSSR prior to the introduction of chlorine into the new system, the following deficiency was found:

17. **John W. Pray Water Treatment Plant failed to perform a pre-startup safety review for modified stationary sources when the modification was significant enough to require a change in the process safety information and other elements of 40 CFR 68.77(a-b).**

COMPLIANCE AUDITS

The RMP submitted for JWPWTP in 1999 was blank where a date for a completed Compliance Audit would have been entered. The RMP submitted in 2004 was also blank. The only reference I found to compliance audits in any of the documents from JWPWTP is the page listed as Attachment #15.

After questioning Mr. Howell at length regarding Compliance Audits, I was left with the observation that the facility had never conducted one. Therefore, based on the lack of any compliance audits, the following deficiency was found:

18. **John W. Pray Water Treatment Plant failed to certify they have evaluated compliance with the provisions of Subpart D at least every three years to verify that procedures and practices developed under this subpart are adequate and are being followed. They also failed to have an audit conducted by at least one person knowledgeable in the process; develop a report of the findings; promptly determine and document an appropriate response to the findings; document that deficiencies have been corrected and retain the two most recent compliance audit reports per 40 CFR 68.79(a-e).**

INCIDENT INVESTIGATION

JWPWTP had not reported any accidental releases on their RMP submissions or corrections. However, some of the documents provided during discussion of the PHAs contained the information found in Attachment #16. The items highlighted in yellow would seem to have occurred prior to 2000 since that date is referenced at the top of the page as being in the past.

Even from the brief descriptions in the attachment, it would appear that at least one where the chlorine sprayed onto the employee's arm would have been reportable. Two others where chlorine leaked might have been reportable. The fourth one, where the pressure regulator was left out of the system, might not have been reportable but certainly would have required an investigation as a near miss. I did ask for the reports to use as an example in an attachment but they were not available. Since these incidents appeared to have occurred prior to 2000, it was past the five years these reports have to be retained.

I asked for forms or documents for any incidents that had occurred within the last five years. I was told that there were no incidents with chlorine within that time. I asked for the forms that the facility would use to capture

the information for an incident investigation. I was not provided any forms or documents. I did discuss with Mr. Horrell the need for the incident investigation to begin within 48 hours and the desirability of capturing that information on the incident investigation form.

At the time of the inspection, I cited the facility for the following deficiency:

19. **John W. Pray Water Treatment Plant failed to prepare an investigation report at the conclusion of an incident investigation that included at a minimum the date of the incident, date investigation began, description of the incident, factors that contributed to the incident and any recommendations resulting from the investigation. They also failed to establish a system to promptly address and resolved any incident report findings; document any resolutions and corrective actions; review the report with all affected personnel and retain any reports for five years per 40 CFR 68.81(d-g).**

However, this was based on the lack of forms or documents to capture information related to:

- Date of the incident
- Date the investigation began
- Incident description
- Factors contributing to the incident
- Recommendation

The fact that I did not receive such forms or documents does not provide proof that the facility is not capable of capturing the information. Without an actual incident report to review, I also was not able to substantiate JWPWTP doesn't promptly resolve and document resolutions of the report's findings and that the findings are not reviewed with affected personnel. Therefore, I erred in citing the facility and this finding is without merit based on lack of substantiation on my part.

Therefore, I would have to conclude I found no deficiency in JWPWTP's Incident Investigation and the preliminary findings was incorrect.

EMPLOYEE PARTICIPATION

As with other elements such as MOC, PSSR, and Compliance Audits, the facility did not have written documentation. This was confirmed by email with Mr. Horrell on November 7, 2013. Thus, based on the lack of this documentation the following deficiency was found:

20. **John W. Pray Water Treatment Plant failed to develop a written plan of action regarding the implementation of the employee participation required per 40 CFR 68.83(a).**

HOT WORK PERMIT

I asked the staff of JWPWTP for Hot Work Permits used when such work is conducted near covered processes. I was told the city of Fort Dodge, including the water treatment plant, does not have a Hot Work Permit program. The fact that JWPWTP does not have a Hot Work Permit was reconfirmed with Mr. Horrell by email on November 8, 2013

Based on the lack of a program, I assume that hot work permits are not issued for such work near covered process. Since permits are not issued, there is no way that any other elements of §68.85 could be met. Therefore, the following deficiency was found:

21. **John W. Pray Water Treatment Plant failed to issue hot work permits for such work near covered processes per 40 CFR 68.85(a).**

CONTRACTORS

I asked Mr. Howell for any documentation regarding contractor evaluation and performance and an example of any documents used to make these evaluations on a recent contractor. Mr. Howell said he had no documents.

I asked Mr. Howell how JWPWTP evaluates information regarding contractor's safety performance and programs. He told me that the consulting engineer on the project and not the city engineer or staff performs this evaluation.

I asked if the facility informs contractors of the known potential fire, explosion, and toxic release hazards associated with the contractor's work and the process. Mr. Horrell informed me that it was done but there was no documentation.

Mr. Horrell told me that regarding the emergency response program or action plan, he talks to the general contractor about the rally points to be used when there is need for evacuation due to a release but again there was no documentation. This was an interesting statement since I later discovered there was no emergency action plan with rally points listed.

As discussed earlier during the element of Safe Work Practices, the facility did not have a procedure to control support personnel entrance into the stationary source. This included contractors. Based on this, the following deficiency was found:

22. **John W. Pray Water Treatment Plant failed to develop and implement safe work practices consistent with §68.69(d) to control the entrance, presence, and exit of the contract owner or operator and contract employees in covered process areas per 40 CFR 68.87(b)(4).**

The JWPWTP evaluates contractor compliance with employees training in safety work practices by observation while the contractor's employees are on site. The same process of evaluation is used regarding contractor employees being instructed on the known potential fire, explosion, or toxic release hazards of the job and applicable provision of the emergency action plan.

Contractor documentation of employee ID, date of training, and means to verify training was understood is evaluated by the consulting engineer for a given contract.

JWPWTP operator and employees observe and report to the contractor if contractor employees do not follow the safety rules of the stationary source including safe work practices.

I was told contractors are instructed to advise the facility of unique hazards posed by the contract work or hazards found by the contractor's work.

It was my observation that JWPWTP lacked any documents regarding contractors even for those on the site during the inspection. It was my observation from talking to Mr. Horrell that there is a great deal of dependence on the consulting engineer when contractors are involved in a project at the water treatment plant. I was not able to determine the reason for this dependence.

SUBPART E - EMERGENCY RESPONSE

Attachment #17 is all of the documentation available at the facility regarding emergency response. The portion of the page dealing with emergency response has been highlighted in yellow by the inspector.

The half page of documentation does not mention calling 911, the local fired department, or the local LEPC. It does not address employees evacuating the area, assembling at rally points for accounting, nor does it identify any rally points. Mr. Horrell told me that JWPWTP has a direct line to the Fort Dodge Fire department, local HAZMAT team, and regional LEPC and that the employees at the water treatment play will not respond to a release.

However, the documentation in Attachment #17 stated that employees must come out of the room where the chlorine is being released and put on the self-contained breathing apparatus. Upon reentering the room with the respiratory protection, the employee should turn off the valve on the chlorine container or stop the flow of chlorine. If the source of the leak is not known, the employee is to use ammonia solution to check the entire system of the source of the leak.

I contacted the local agency listed in Section 9 of the 2004 RMP submission, Region V LEPC. I spoke with Ms. Stickrod, of the Region V HAZMAT Response Commission. She referred me to Mr. Tony Jorgensen, Chairman of the Region V LEPC. During the discussion with Mr. Jorgensen, he informed me he was formerly with the Fort Dodge Fire Department. Both he and Ms. Stickrod conveyed to me that the Fort Dodge Fire Department HAZMAT response team, which services the counties in Region V, has done training exercises at the water treatment plant. Mr. Jorgensen was able to send me the Webster County Emergency Support

Function 10 Hazardous Material document where facilities with hazardous material are listed for coordination with first responders in the event of an emergency. On pages 85-87 of that document, the JWPWTP is listed. Those pages have been added to Attachment #17 as pages 2-4.

Based on the information I received from Ms. Stickrod and Mr. Jorgensen, the JWPWTP appears in the community emergency response plan. My observations were that an employee would not be able to read or study the facility's emergency action plan to determine what their actions or responses should be during an emergency. Without training records, it was not possible to determine if an exercise has been conducted simulating an accidental release and/or an evacuation. The employees and the facility would benefit from a written comprehensive emergency action plan that details what the employees are to do and emergency numbers to call, even if the emergency number is a simple 911.

SUBPART G – RISK MANAGEMENT PLAN

Prior to the inspection, I reviewed the RMP last submitted by the facility, which was June 2004. The Executive Summary included all of the required elements except planned changes to improve safety. Based on the lack of that element in the summary, the following deficiency was found:

23. **John W. Pray Water Treatment Plant failed to provide an executive summary in the RMP that included a brief description of planned changes to improve safety per 40 CFR 68.155(f).**

Also noted during a review prior to the inspection of the RMP submissions from the facility, the most recent submission indicated that the next due date for the 5-year revision and update was June 18, 2009. At the time of the inspection in 2013 and at the conclusion of the writing of this report, that 5-year submission had not taken place.

Based on the lack of a 5-year revision and update of the RMP, the following deficiency was found:

24. **John W. Pray Water Treatment Plant failed to review and update the RMP at least once every five years from the**

date of its initial submission or most recent update required by §68.190(b)(2-7) per 40 CFR 68.190(b)(1).

CLOSING CONFERENCE

At the closing conference, I went through the completed forms explaining in particular the preliminary findings and noting that a post inspection review of documents might reveal other findings.

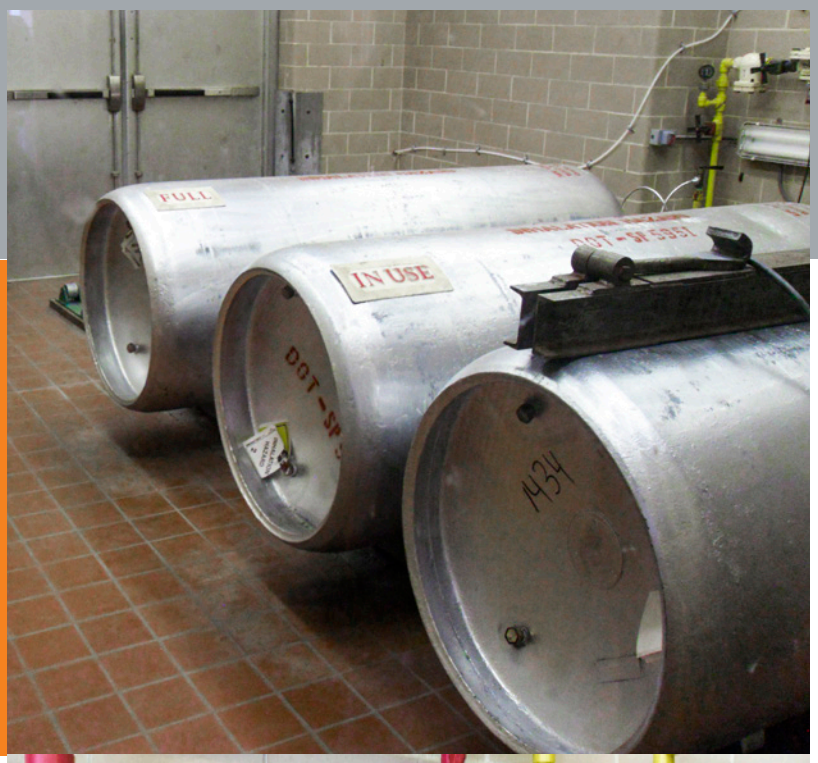
Mr. Horrell signed the Receipt for Samples and Documents (Att. #2), and Notice of Preliminary Findings (Att. #3). I asked if any of the documents or pictures were confidential business information (CBI). Mr. Horrell indicated that none of the documents contained confidential business information and this was so noted on the CBI form. None of the photographs contained any CBI either. Mr. Horrell signed the Confidentiality Notice (Att. #4) indicating no CBI documents were taken during the inspection. I provided Mr. Horrell a copy of the signed forms. I scanned the signed forms along with the completed Multimedia Checklist (Att. #5) to the USB flash drive. The digital photographs taken during the tour were also copied to the USB flash drive.

After copying the contents of the USB flash drive to the CPM folder on my laptop, I loaned the flash drive to Mr. Horrell to allow him to copy its contents to his computer after which the flash drive was returned to me.

During the inspection, Mr. Horrell was professional and courteous in his dealings with at all times.

I packed up my materials and equipment and departed the facility at approximately 1600 hours on August 28, 2013.

Bob Munson
Compliance Inspector
November 14, 2013



Fee Proposal

John W. Pray Water Treatment Plant

Risk Management Plan

City of Fort Dodge, IA

November 12, 2014

EXHIBIT A

SCOPE OF SERVICES

This document sets forth the Scope of Services that HDR Engineering, Inc. (HDR/Engineer) will perform under the March 2014 Professional Services Agreement between the City of Fort Dodge, Iowa (City/Owner) and HDR Engineering, Inc.

I. PROJECT UNDERSTANDING

HDR understands that the City of Fort Dodge Water Treatment Plant uses, stores, and handles chlorine in amounts that exceed EPA's Risk Management Planning (RMP) 40 CFR 68 and OSHA's Process Safety Management (PSM) 29 CFR 1910.119 regulatory thresholds and is subject to those regulations. It is also understood that the chlorination system is being retrofitted with tank-mounted regulators which will provide a safer vacuum delivery system to the water treatment process. As part of these system improvements, the City has requested that HDR assist them with the preparation and development of Risk & Process Safety Management Program.

II. SCOPE OF SERVICES

HDR will assist the City with program implementation through the following tasks:

Task Series 100 – Project Management

1. ***Objective:*** Provide project management services for the Project duration including planning, organizing and monitoring Project team activities, preparing and monitoring document production, attending meetings, budget management, and liaison with City.
2. ***HDR Activities:***
   a. ***110 – Team Management and Project Control***
      i. Resource scheduling, management, and allocation based on Project schedules and activities.
      ii. Budget and invoice management.
      iii. Production coordination.
      iv. Monthly progress report submitted to City with each payment request.
   b. ***120 – Project Management Plant Development***

      Develop guidance document (Project Management Plan) for HDR personnel documenting Project activities, constraints, guidelines, budgets and procedures.

   c. ***130 – Quality Assurance & Quality Control***

      Develop a Quality Assurance & Quality Control plan for the Project. Facilitate internal independent quality control reviews of draft and final deliverables.

d. ***140 – Kickoff Meeting***

Prepare for and conduct a kickoff meeting with City staff to review the RMP/PSM process, scope of services, deliverables, schedule, and workshops/meetings. Discuss equipment, process flow, layouts, operating procedures, and collect information pertinent to the process safety information.

e. ***150 – Final Review Meeting***

Prepare for and conduct a review meeting with City staff to review and discuss the draft deliverables provided in this Scope of Services. Draft deliverables will be made in a single package for review and comment by City staff.

3. ***Travel***

- Three HDR personnel will travel to the site to attend the kickoff meeting.
- Two HDR personnel will travel to the site to attend the review meeting.

4. ***Task Deliverables:***

- Monthly Project status reports and invoices.
- Meeting notes for the Kickoff Meeting and Final Review Meeting.

Task Series 200 – Process Safety Information

1. ***Objective****:* Prepare the Process Safety Information identifying and explaining the hazards associated with the regulated substance, the technology of the process, the equipment used in the process, and drawings showing the layout, flow, and control of the process.

2. ***HDR Activities:***

a. ***210 – Process Safety Information (PSI)***

Prepare the PSI section and develop the stipulated supporting documentation per the regulations to include a block flow diagram, chlorination room layout figure, chemical properties and physiological effects of chlorine, process and instrumentation diagrams, and a process flow diagram.

b. ***220 – Equipment Information***

Prepare a table of Equipment Information to reflect pertinent equipment data for inclusion in the PSI section.

c. ***230 – Chlorine Facility Layouts***

Prepare a chlorination room layout figure, including all major chlorine feed equipment and safety features/equipment.

d. ***240 – Process Flow Diagrams***

Prepare a block flow diagram, process and instrumentation diagrams, and a process flow diagram.

3. ***Task Deliverables****:*

- Process Safety Information document.

Task Series 300 – Management of Change and Emergency Action Plan

1. ***Objective****:* Implement the Management of Change (MOC) procedure to identify, coordinate and assess proposed changes to the chlorination process equipment maintenance, safety, and operating practices. Develop a revised Emergency Action Plan to reflect best practices for addressing emergencies at the facility.
2. ***HDR Activities:***
    a. ***310 – MOC Documentation***

    Prepare a template MOC form and develop supporting documentation per the regulations to accompany the form for implementing the retrofit of the tank-mounted vacuum regulators.

    b. ***320 – Emergency Action Plan***

    Review and update the City of Fort Dodge's Emergency Action Plan and add language addressing an accidental chlorine release at the water treatment plant and the associated notification, response, and evacuation procedures to be taken by the City.
3. ***Task Deliverables****:*

- Completed MOC form and supporting documentation.
- Emergency Action Plan language specific to a chlorine release from the water treatment plant.

Task Series 400 – Standard Operating Procedures

1. ***Objective****:* Develop new standard operating procedures (SOPs) that outline steps for each operating phase for the chlorination system, including initial startup, normal operations, temporary operations, emergency shutdown/operations, normal shutdown, and startup after turnaround or emergency shutdown.
2. ***HDR Activities:***
    a. ***410 – SOP Template***

    Review existing plant SOPs and develop a template for chlorination system SOPs.

    b. ***420 – Field Investigations***

    Work with City staff to review and document existing procedures. Review plans for new chlorination equipment to reflect new equipment in updated SOPs.

    c. ***430 – SOP Development***

    Draft new SOPs to reflect new equipment and best practices for each operating phase of the chlorination system.

    d. ***440 – Process Verification***

    Work with City staff to verify that SOPs will be suitable based on field conditions and, if necessary, incorporate adjustments.
3. ***Travel***

- Two HDR personnel will travel to the site for a one day PHA workshop.

4. ***Task Deliverables****:*
   - Updated Standard Operating Procedures for the chlorination system.

Task Series 500 – Off Site Consequence Analysis and Risk Management Plan

1. ***Objective****:* Perform an Off-Site Consequence Analysis (air modeling) of worst case and alternative case releases of the regulated substance, chlorine. Include this information with the materials used in the preparation of the Risk Management Plan for submittal to EPA.
2. ***HDR Activities:***
   a. ***510 – Off-Site Consequence Analysis (OCA)***

      Using EPA's RMP Comp software, perform air emission modeling and analysis of the worst case and alternative case release scenarios that could occur at this location. Determine the impact distance for both the worst-case and alternative case scenarios and prepare an off-site consequence analysis report for documentation of the event.

   b. ***520 – Risk Management Plan (RMP)***

      Prepare a Risk Management Plan using EPA's RMP ESubmit program and assist the City with its transmittal to the EPA. The document will include information regarding facility location and operations, a report on the status of its RMP Program, and an executive summary of the City's RMP Program.
3. ***Task Deliverables****:*
   - OCA Report and diagrams .
   - RMP ESubmit electronic and hardcopy.

Task Series 600 – Process Hazard Analysis

1. ***Objective:*** Facilitate a Process Hazard Analysis (PHA) that provides a structured examination of the process hazards, and results in a hazard ranking using a "What If" methodology for evaluation and analysis of risks. Include City staff in the group analysis of the potential risks associated with the regulated substances, process equipment, and procedures during operation of the regulated processes.
2. ***HDR Activities:***
   a. ***610 – PHA Workshop Preparation***

      Prepare PHA worksheets, system diagrams, and a list of operational issues to be considered during the hazard analysis workshop.

   b. ***620 – Conduct PHA Workshop***

      Facilitate the PHA workshop with City staff members representing operations,

maintenance, engineering, and safety. Review the process safety information, management of change, and discuss the regulated process to identify potential hazards. Document the workshop in a summary table identifying the hazard and potential consequences, safeguards, numeric likelihood and severity of occurrence and resulting ranking, recommendation(s) for addressing hazard, and responsible party.

c. ***630 – PHA Workshop Summary***

Prepare a report of the PHA workshop summarizing the conclusions and identifying priority action items to be addressed.

3. ***Travel***

- Two HDR personnel will travel to the site for a one day PHA workshop.

4. ***Task Deliverables:***

- Process Hazard Analysis Report.

Task Series 700 – Additional Services

1. ***Objective:*** At the request of the City of Fort Dodge, HDR will perform tasks selected by the City and defined below as additional services beyond the original scope of work defined in this exhibit. The fee proposal lists each task separately so they may be selected "a la carte."

2. ***HDR Activities:***

a. ***710 – Iowa DNR Construction Permits***

Prepare Construction Permit Applications for the City to submit to the Iowa Department of Natural Resources (DNR) for the chlorination system improvements. This task will only be performed if requested by the City and if permits are required by Iowa DNR.

b. ***720 – Off-site Consequence with ALOHA/DEGADIS Models***

After the completion of RMP-Comp modeling, the City may authorize HDR to model a site specific impact using the ALOHA and/or DEGADIS models.

c. ***730 – Deficiency Audit & Program Development***

Use Implementation Tracking to follow the status of deficiencies identified in the EPA inspection and action items resulting from the PHA. The base scope of services addresses 12 of the 24 original deficiencies identified in the EPA inspection. At the request of the City, HDR is prepared to assist with other elements of a Process Safety Management Program. This approach will result in addressing the 24 deficiencies and preparation of plan sections for the 15 elements of the Process Safety Management Program.

1) Management System

2) Off-site Consequence Analysis & RMP E-submit (Addressed in Task 500)

3) Process Safety Information (Addressed in Task 200)

4) Process Hazard Analysis (Addressed in Task 600)

5) Standard Operating Procedures (Addressed in Task 400)

6) Training

7) Mechanical Integrity

8) Management of Change (Addressed in Task 300)

9) Pre-Startup Safety Review

10) Compliance Audits

11) Incident Reports

12) Employee Participation

13) Hot Work

14) Contractors

15) Emergency Action Plan (Addressed in Task 300)

RMP Heads Up Program – As part of plan section development HDR will prepare a heads up program for application through Microsoft Outlook or other venue establishing trigger dates for submittals, recordkeeping, and self-inspection/documentation to assist the City with program documentation.

MOC Procedures – HDR will define best practices for when the Management of Change process is necessary and develop procedures to identify the documents that should be updated for a given change.

d. ***740 – Compliance Audit***

At the request of the City, HDR will conduct a compliance audit approximately six months following the completion of the Process Safety Management program. The purpose of the audit will be to verify completion of action items identified during the Process Hazard Analysis and in the Implementation Tracking Log and completion of program elements tasked to the City.

e. ***750 – RMP/PSM Program Training***

At the request of the City, prepare for and conduct a training session to familiarize plant staff with the basics of the RMP/PSM Program, required documentation, and safety hazards.

f. ***760 – Chlorine System Training***

At the request of the City, prepare for and conduct a training session to familiarize plant staff with the operations of the chlorination system.

III. KEY ASSUMPTIONS

The following are understood or assumed.

1. The City will participate in all aspects of program development including information

gathering, document review, and providing signatory authorizations.

2. The PSM documents will be based on applicable codes and standards in effect at the start of the project. Changes in codes that occur after the start of the project will be incorporated by Contract Amendment.
3. Following delivery of the SOP template and the SOPs for the chlorination system, the City will prepare Standard Operating Procedures for its own safe work practices and procedures for lock out/tag out, confined space entry, and opening process equipment or piping (pipe break procedure).
4. Investigation and remediation of possible hazardous waste, asbestos, lead paint or other types of contamination are not anticipated and will be conducted as a separate contract if subsequently determined to be required.
5. As part of the Off Site Consequence Analysis, HDR will use EPA's RMP-Comp model to determine the impact distance for the worst-case and alternative case release scenarios.
6. Preparation of Plan Sections for items 6, 9, and 11-14 of Task 730 will also include forms for the City's use to document program activities.
7. Task 740, if authorized by the City, would be conducted 6 to 12 months after filing the RMP with EPA.

Fort Dodge Water Treatment Plant - RMP/PSM Services
Proposed Budget
11/10/2014

Task No.	Task Description	Principal	PM	QA/QC	Sr. PE (PSM)	Jr. PE	Operations Specialist	GIS	CADD	Acct	Project Assist.	Labor Cost		Expenses	Total Fee
		Duben	Butterfield	Malinowski	Osborn	Gilbert	L. Johnson	Mertz	Queen	Allely	Staff	Hours	Dollars		
100	**Project Management**	**8**	**38**	**4**	**16**	**0**	**0**	**0**	**0**	**10**	**4**	**80**	**$ 12,539**	**$ 1,046**	**13,585**
110	Team Management, & Project Control	2	18							10		30	$ 3,896	$ 111	4,007
120	Project Management Plan		4								4	8	$ 859	$ 30	889
130	Quality Assurance & Quality Control Program	4	4	4								12	$ 2,539	$ 44	2,583
140	Kickoff Meeting	2	6		8							16	$ 2,869	$ 489	3,358
150	Review Meeting		6		8							14	$ 2,376	$ 372	2,748
200	**Process Safety Information**	**2**	**10**	**4**	**22**	**0**	**4**	**0**	**32**	**0**	**8**	**82**	**$ 12,133**	**$ 303**	**12,436**
210	Process Safety Information	2	4	4	16						4	30	$ 5,478	$ 111	5,589
220	Equipment Information		2		2						4	8	$ 977	$ 30	1,006
230	Chlorine Facility Layouts		2		2				8			12	$ 1,563	$ 44	1,608
240	Process Flow Diagrams and P&IDs		2		2		4		24			32	$ 4,114	$ 118	4,233
300	**Management of Change & Emergency Action Plan**	**0**	**8**	**4**	**28**	**0**	**0**	**6**	**0**	**0**	**2**	**48**	**$ 8,222**	**$ 178**	**8,399**
310	MOC Documentation		4		4							8	$ 1,324	$ 30	1,354
320	Emergency Action Plan		4	4	24			6			2	40	$ 6,897	$ 148	7,045
400	**Standard Operating Procedures**	**2**	**3**	**2**	**0**	**0**	**34**	**0**	**0**	**0**	**10**	**51**	**$ 8,553**	**$ 459**	**9,012**
410	SOP Template		1				2				4	7	$ 825	$ 26	851
420	Field Investigations						12					12	$ 2,245	$ 179	2,425
430	SOP Development	2	2	2			12				4	22	$ 3,829	$ 81	3,910
440	Process Verification						8				2	10	$ 1,654	$ 172	1,826
500	**Off-Site Consequence & RMP**	**0**	**6**	**0**	**8**	**20**	**0**	**8**	**0**	**0**	**0**	**42**	**$ 5,381**	**$ 155**	**5,536**
510	Off-Site Air Emission Model		4		4	10		8				26	$ 3,167	$ 96	3,263
520	RMP Esubmit		2		4	10						16	$ 2,214	$ 59	2,273
600	**Process Hazard Analysis**	**2**	**18**	**2**	**30**	**0**	**0**	**0**	**4**	**0**	**4**	**60**	**$ 10,060**	**$ 492**	**10,552**
610	PHA Workshop Preparation		4		8				4		2	18	$ 2,712	$ 67	2,778
620	Conduct PHA Workshop		10		12							22	$ 3,700	$ 351	4,052
630	PHA Summary Report	2	4	2	10						2	20	$ 3,648	$ 74	3,722
	TOTAL	**14**	**83**	**16**	**104**	**20**	**38**	**14**	**36**	**10**	**28**	**363**	**$ 56,887**	**$ 2,633**	**59,520**
700	**Additional Services (a la carte, optional)**	**2**	**40**	**2**	**70**	**20**	**16**	**4**	**4**	**4**	**2**	**164**	**$ 26,732**	**$ 1,012**	**27,744**
710	Iowa DNR As-Built Construction Permits	2	8								2	12	$ 1,740	$ 44	1,784
720	Off-Site Consequence with ALOHA/DEGADIS			1	2	8		4				15	$ 1,912	$ 56	1,967
730	Program Development				24	8			4	1		37	$ 6,153	$ 137	6,290
730.1	RMP Heads Up Program				2	4						6	$ 855	$ 22	877
730.2	MOC Procedures		8		8							16	$ 2,648	$ 59	2,708
740	Compliance Audit - 12 months following		4	1	20					1		26	$ 4,790	$ 231	5,021
750	RMP/PSM Program Training		10		14					1		25	$ 4,185	$ 228	4,413
760	Chlorine Feed System Training		10				16			1		27	$ 4,450	$ 235	4,685

300 East Locust Street, Suite 210
Des Moines, IA 50309
515.280.4940

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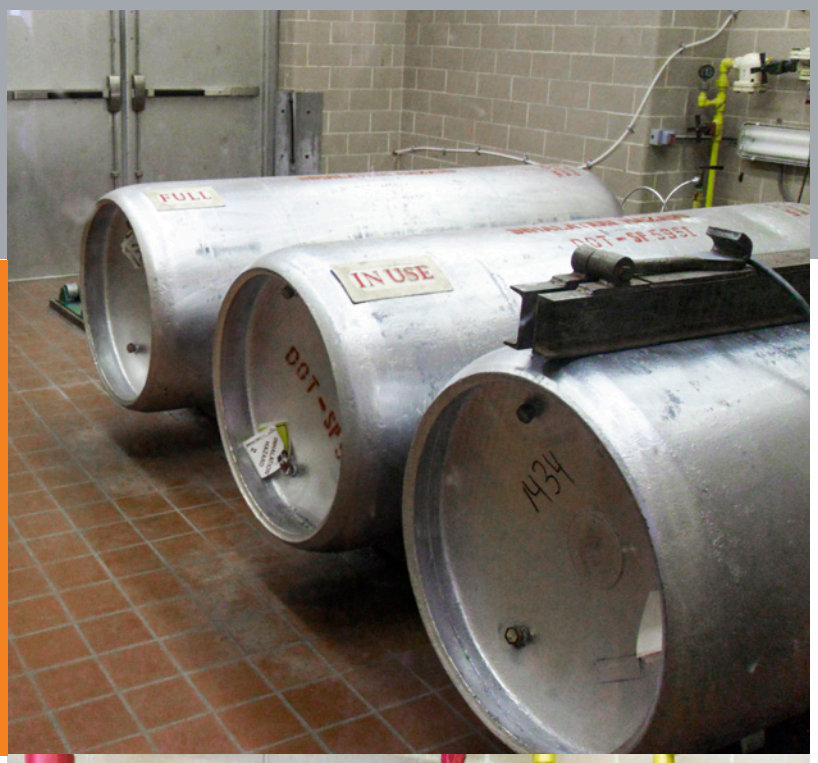
We practice increased use of sustainable materials and reduction of material use.



Statement of Qualifications

John W. Pray Water Treatment Plant

Risk Management Plan

City of Fort Dodge, IA

November 12, 2014

November 12, 2014

Mr. Tony Trotter
City of Fort Dodge Engineering Department
819 1st Avenue South
Fort Dodge, IA 50501

RE: Statement of Qualifications for John W. Pray Water Treatment Plant Risk Management Plan

Dear Mr. Trotter and Members of the Selection Committee:

The City of Fort Dodge needs to update its current Risk Management Plan and Process Safety Management documentation related to the chlorination system at the John W. Pray Water Treatment Plant to maintain compliance with EPA and OSHA regulations. Selecting HDR to deliver these updates will be the next step towards **bringing the John W. Pray Water Treatment Plant into compliance and providing a safer facility for staff and the community at large.** HDR will deliver a plan that is:

- **Implementable and easy to navigate.** The plan will be usable tool that puts documentation in place to effectively manage the chlorine system and the required regulatory documents. Changes to the regulated processes will be carefully planned, reflect good engineering practices and can be implemented safely. Staff will be kept updated on the changes in equipment and process implications.
- **Complete and thorough.** HDR will document process and equipment information, working with plant staff when necessary to fill in any gaps, and will include the new tank-mounted vacuum regulators and new four cylinder feed system. HDR will perform air emission modeling and analysis of the worst case and alternative case release scenarios that could occur at this location, determine the impact distance for both the worst-case and alternative case scenarios, and prepare an off-site consequence analysis report for documentation of the event.
- **Completed in collaboration with City staff.** HDR will facilitate a "what if" workshop to identify risks and potential hazards of the new system in collaboration with City staff. The end result will identify the potential hazards and list steps to mitigate or minimize the consequences.

HDR is ready to listen, understand and act on your needs. We will commit the appropriate team members' time throughout the project duration to deliver the necessary depth of expertise and resources required. We appreciate the opportunity to assist you with the Risk Management Plan and look forward to working with you and your staff.

Sincerely,

HDR ENGINEERING, INC.

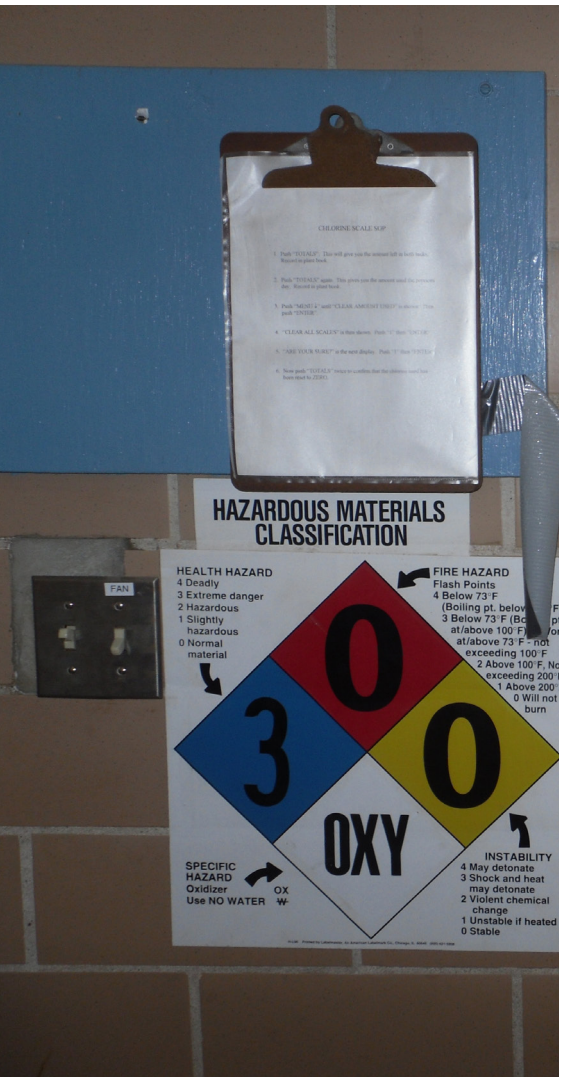
Michael Butterfield, PE
Project Manager
319.373.2536 Ext 3
Michael.Butterfield@hdrinc.com
(Primary Contact)

Mark Duben, PE
Project Principal
515.280.4952

Ron Sova, PE, VP
Assistant Department Manager
402.399.1335

Understanding & Approach

Together, we make great things possible.



Understanding & Approach

The John W. Pray Water Treatment Plant uses chlorine gas for disinfection of drinking water for the City of Fort Dodge. With 8,000 lbs of chlorine gas at the plant, Risk Management Planning (RMP) and Process Safety Management (PSM) are required by EPA and OSHA, respectively. HDR is prepared and ready to assist the City of Fort Dodge with preparation and development of a Risk and Process Safety Management Program.

The goal of this project is clear – bring the John W. Pray Water Treatment Plant into compliance with EPA and OSHA regulations through an implementable Risk Management Plan that is easy to navigate, as well as updating the Process Safety Management documentation at the facility.

An inspection by EPA in 2013 determined that the City needed to redevelop their safety program for chlorine gas. HDR understands that improvements to the chlorination system, including a retrofit to add tank-mounted vacuum regulators, will provide a safer vacuum feed system; aligning the retrofit with redeveloping the Risk and Process Safety Management Program puts documentation in place to effectively manage the chlorine system.

HDR's experience in developing risk management plans and PSM programs – in Iowa and around the country – provides the City of Fort Dodge confidence that the resulting program will **meet regulatory requirements, be easy to navigate for maintaining updated documents, and enhance safety standards at the plant.**

Technical Approach

HDR will provide professional expertise to create EPA-compliant Risk and Process Safety Management documentation related to the chlorination system at the John W. Pray Water Treatment Plant. **The success of this project depends upon the development of a program that is easy to use and navigate with clear procedures for documentation.**

An overview of HDR's proposed approach to addressing these key considerations follows. It reflects insight gained and lessons learned from HDR's prior experience analyzing and preparing RMP and PSM documentation while successfully navigating clients through EPA regulations.

HDR will assist the City with program implementation through the following tasks which are described in more detail below and on the following pages:

- **Task 100 - Project Management**
- **Task 200 - Process Safety Information (PSI)**
- **Task 300 - Management of Change and Emergency Action Plan (EAP)**
- **Task 400 - Standard Operating Procedures (SOP)**
- **Task 500 - Off-Site Consequence Analysis (OCA) and Risk Management Plan (RMP)**
- **Task 600 - Process Hazard Analysis (PHA)**
- **Task 700 - Additional Services**

EPA's Risk Management Planning (40 CFR 68) and OSHA's Process Safety Management (29 CFR 1910.119) requirements include the following elements:

- Introduction & Management System
- Off-site Consequence Analysis & RMP E-submit
- Process Safety Information
- Process Hazard Analysis
- Standard Operating Procedures
- Training
- Mechanical Integrity
- Management of Change
- Pre-Startup Review
- Compliance Audits
- Incidence Reports
- Employee Participation
- Hot Work
- Contractors
- Emergency Action Plan

Task 100 Project Management

Objective:

Provide project management services for the duration of the project, including planning, organizing and monitoring activities; document production; attending meetings; managing budgets; and collaborating with City.

HDR Activities:

- Team Management and Project Control
- Project Management Plan Development
- Quality Assurance and Quality Control
- Kickoff Meeting
- Monthly Status Reports and Invoices
- Final Review Meeting

Approach:

HDR's philosophy is to be an expertise-driven national firm that delivers tailored solutions through a strong local presence. Our management approach establishes project goals and objectives clearly, executes technical services systematically, and delivers results as expected.

HDR will conduct a focused kickoff meeting to review the City's priorities, key issues, critical success factors, and begin collecting information from the City that will be needed to build the Risk and Process Safety Management Program documents. Throughout the project, HDR will meet with the City leadership team to discuss the project scope, schedule and budget. These meetings will be used to sustain the project momentum and address project issues as they arise.

Task 200 Process Safety Information (PSI)

Objective:

Prepare the Process Safety Information (PSI) identifying and explaining the hazards associated with the regulated substance, the technology of the process, the equipment used in the process, and drawings showing the layout, flow, and control of the process.

HDR Activities:

- PSI
- Equipment Information
- Chlorine Facility Layouts
- Process Flow Diagrams

Approach:

HDR will build a complete and thorough PSI section. HDR will collect necessary process and equipment information, working with plant staff when necessary to fill in any gaps. Existing construction drawings from the chlorine system improvement project in 2000 will provide a starting point. The new tank-mounted vacuum regulators and new four cylinder (two duty, two stand-by) feed system will be incorporated into the final layouts and diagrams.

Task 300 Management of Change (MOC) & Emergency Action Plan (EAP)

Objective:

Implement the Management of Change (MOC) procedure to identify, coordinate and assess proposed changes to the chlorination process equipment maintenance, safety, and operating practices. Develop a revised Emergency Action Plan (EAP) to reflect best practices for addressing emergencies at the facility.

HDR Activities:

- MOC documentation
- EAP

Approach:

The MOC element helps ensure that changes to the regulated process are carefully planned, reflect good engineering practices, and can be implemented safely. This helps plant staff to understand changes in equipment and process implications. HDR will work with the City to develop a MOC form tailored to the needs of the City, first for the current chlorine system modifications and then for future modifications.

A clear and consistent EAP is important to effectively guide City staff in addressing a chlorine leak. The City's EAP can be structured to include the John W. Pray Water Treatment Plant and, specifically, actions necessary in the case of a chlorine leak. Employee actions, contact information, and rallying points will all be identified.

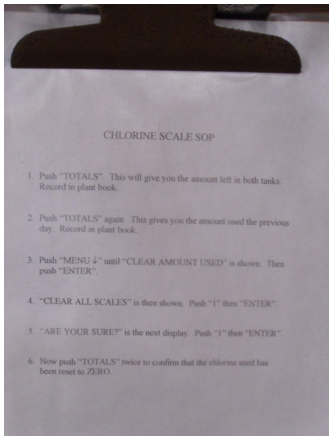
Task 400 Standard Operating Procedures (SOPs)

Objective:

Develop new standard operating procedures (SOPs) that outline steps for each operating phase for the chlorination system, including initial startup, normal operations, temporary operations, emergency shutdown/operations, normal shutdown, and startup after turnaround or emergency shutdown.

HDR Activities:

- SOP Template
- Field Investigations
- SOP Development
- Process Verification



Approach:

With the installation of new tank-mounted regulators, the timing of the RMP project is ideal. HDR will first review existing plant SOPs and develop a template for chlorination system SOPs to be used for each operational parameter required by the regulations:

- Initial Startup
- Normal Operation
- Normal Shutdown (including Tank Change-Out)
- Emergency Shutdown
- Temporary Operations
- Startup After Shutdown.

We will work with plant staff to review existing procedures and update the SOPs to reflect the new equipment, as well as verify that SOPs will be suitable based on field conditions and, if necessary, incorporate adjustments.

Task 500 Off-Site Consequence Analysis (OCA) and Risk Management Plan (RMP)

Objective:

Perform an Off-Site Consequence Analysis (air modeling) of worst case and alternative case releases of the regulated substance, chlorine. Include this information with the materials used in the preparation of the Risk Management Plan for submittal to EPA.

HDR Activities:

- OCA
- RMP

Approach:

Following data collection in the field, HDR will develop two release scenarios – a worst case scenario (defined by EPA) and an alternative case scenario (based on potentially more realistic conditions). Using EPA's RMP Comp software, HDR will perform air emission modeling and analysis of the worst case and alternative case release scenarios that could occur at this location, determine the impact distance for both the worst-case and alternative case scenarios, and prepare an off-site consequence analysis report for documentation of the event. Alternative models like ALOHA and DEGADIS will also be used to determine the smallest impact radius.

HDR will prepare updated information in preparation for the final RMP E-submit to the EPA after all of the draft documents have been reviewed and finalized.

Task 600 Process Hazard Analysis (PHA)

Objective:

Facilitate a Process Hazard Analysis (PHA) that provides a structured examination of the process hazards, and results in a hazard ranking using a "What If" methodology for evaluation and analysis of risks. Include City staff in the group analysis of the potential risks associated with the regulated substances, process equipment, and procedures during operation of the regulated processes.

HDR Activities:

- PHA Workshop Preparation
- Conduct PHA Workshop
- PHA Workshop Summary

Approach:

The PHA will consist of a facilitated "what if" workshop to identify risks and potential hazards of the new system. Fort Dodge is in a unique position considering that the tank-mounted vacuum regulators will be brand new, so this is an ideal time to conduct the PHA and critically think through the new equipment. The end result will be a report identifying the potential hazards and listing steps to mitigate or minimize the consequences. The PHA workshop will be one of the last steps of the project; doing it late in the process will enable all of the other components to be complete and available to present to workshop participants.

Task 700 Additional Services

Objective:

At the request of the City of Fort Dodge, HDR will perform tasks selected by the City and defined below as additional services beyond the original scope of work defined in this exhibit.

HDR Activities:

- Iowa DNR As-Built Construction Permits
- Off-site Consequence Analysis with ALOHA/ DEGADIS Models
- Deficiency Audit & Program Development
- Compliance Audit
- RMP/PSM Program Training
- Chlorine System Training
- Define best practices for when the MOC process is necessary, and identify the documents that need to be updated when changes are made.

Approach:

The City's Request for Qualifications and Fee Proposals, and HDR's proposed base scope of services, addresses 12 of the 24 original deficiencies identified in the EPA inspection. At the request of the City, HDR is prepared to assist with other elements of a PSM Program and implementing the new chlorination system modifications. These items are considered "a la carte" and can be selected by the City independently of other services. HDR feels these are value-added activities that can result in a more complete PSM Program without added burden to City staff.

HDR will use Implementation Tracking to follow the status of deficiencies identified in the EPA inspection and action items resulting from the PHA. The City's Request for Qualifications and Fee Proposals, and HDR's proposed base scope of services, addresses 12 of the 24 original deficiencies identified in the EPA inspection. At the request of the City, HDR is prepared to assist with other elements of a Process Safety Management Program. This approach will result in addressing all 24 deficiencies and preparation of plan sections for the 15 elements of the Process Safety Management Program. The table below lists all of the items identified in EPA's inspection and the HDR Task that addresses each item. Items in Task 700, Additional Services, include remarks on how HDR would approach the item if requested by the City.

TABLE 1. ISSUES IDENTIFIED DURING INSPECTION BY EPA

ITEM NO.	EPA OBSERVATIONS	HDR TASK	REMARKS
1	Develop a Management System	700	Prepare plan section on organizational authority, responsibilities, and accountability for RMP implementation.
2 & 3	Prepare a new and retain former OCAs	500	
4 & 5	Prepare written Process Safety Information Packet	200	
6	Address old PHA findings	700	Review previous PHA to identify action items for resolution.
7 & 8	Redo PHA every 5 years	600	
9 & 10	Develop written operating procedures that included clear instructions for safe work practices.	400	
11	Write safe work practices	400	
12	Provide refresher training	700	Conduct an overview training on Risk Management Program.
13 & 14	Implement a Mechanical Integrity program	700	Work with City to develop PM tasks for chlorination equipment.
15	Assure that the construction of new plant and equipment was suitable for the application	700	Review existing and proposed equipment to verify suitability based on current standards.
16	Have a Management of Change Procedure and implement it	300 & 700	Define best practices for when the MOC process is necessary, and identify the documents that need to be updated when changes are made.
17	Perform Pre-Startup Safety Reviews of new and modified equipment	700	Develop plan section and procedure and create template review form. Complete form for system modifications being implemented.
18	Conduct a program audit at least every three years	700	Perform program audit 6-12 months after submittal to EPA to verify completion of action items identified during the PHA and in the Implementation Tracking Log, and completion of program elements tasked to the City.
19	Prepare an incident investigation report	700	Develop plan section and procedure and create template review form for use by the City.
20	Have and implement a plan for employee participations	700	Develop plan section and procedure and create template review form for use by the City.
21	Have and implement a plan to control hot work	700	Develop plan section and procedure and create template review form for use by the City.
22	Implement safe work practices for contractors	700	Develop plan section and procedure and create template review form for use by the City.
23 & 24	Prepare an RMP with executive summary that included facility improvements	500	

Communication Plan

Experience shows that effective communication is an important element of any project and our team recognizes that successful-effective communication requires both discussing and listening. We work closely with you, guiding you through the known and the unfamiliar by encouraging regular communication throughout the project. We listen to you, providing straightforward answers to tough questions and facilitating communication and feedback at critical project milestones. Our overall objectives for successful communication for this project are to:

- Achieve a clear understanding of Fort Dodge's:
  - » Objectives and Preferences
  - » Requirements and Needs
  - » Project Information
  - » Criteria for Success
  - » Prior Experience
- Facilitate the most effective level of communication possible without being overwhelming or burdensome to City staff
- Assure that Fort Dodge clearly understands and provides guidance on project issues
- Maintain face-to-face communications with key staff at regular intervals

To achieve these objectives, our team offers the following:

- **Highly talented project manager and project engineer who listen.** Mike Butterfield and Craig Osborn, through experience gained throughout their careers, understand that successful projects are founded on listening first. Through site visits and discussions, we have done our homework to understand your goals. We are committed to carrying effective communication between HDR and the City throughout the project in order to provide quality services focused on Fort Dodge.
- **A kickoff meeting with City staff** to review and confirm project requirements, goals, etc, as well as project procedures and communication protocols.
- **Audit Deficiency Tracking Log** which will be used to track the 24 deficiencies outlined in the audit report and assign a responsible party, track the progress to address each and every , keep the responsible parties on track and facilitate the thorough completion of the deliverables in a timely fashion.
- **Conference calls**, both regularly scheduled calls and those arranged on an as-needed basis, are a common method used by HDR to regularly engage team members from a variety of locations. This facilitates team synergy and allows participation from national experts and senior professionals in a manner that keeps travel costs down. Video conferencing is a tool that we are utilizing to provide significant benefit in terms of project coordination and production efficiency.
- **Email communication** will be conducted as the normal course of business to facilitate rapid communication.
- **Face-to-face project review meetings** will be conducted as needed over the course of the project to assure complete understanding of your needs and issues, project status/progress, etc. While email, conference calls, etc., enhance efficiency and are wonderful tools at our disposal, face-to-face meetings remain one of the most important means for communication that cannot be fully replaced.
- **ProjectWise** is a database program utilized at HDR for maintaining massive amounts of information in an orderly manner for each and every project. While one could contend that it is not an "active" communication tool like the phone, meetings, email, mail, etc., it controls information in a manner to assure that only the latest version of a given project file is utilized and accessible by team members. This is achieved through its file "check out" and "check in" requirements for project documents/files (e.g. word documents, drawing files, spreadsheets, etc.) which is especially important for files undergoing revisions by multiple team members.
- **Mail and personal delivery** will be utilized as needed for legal documents and other important written communications as required for the project.

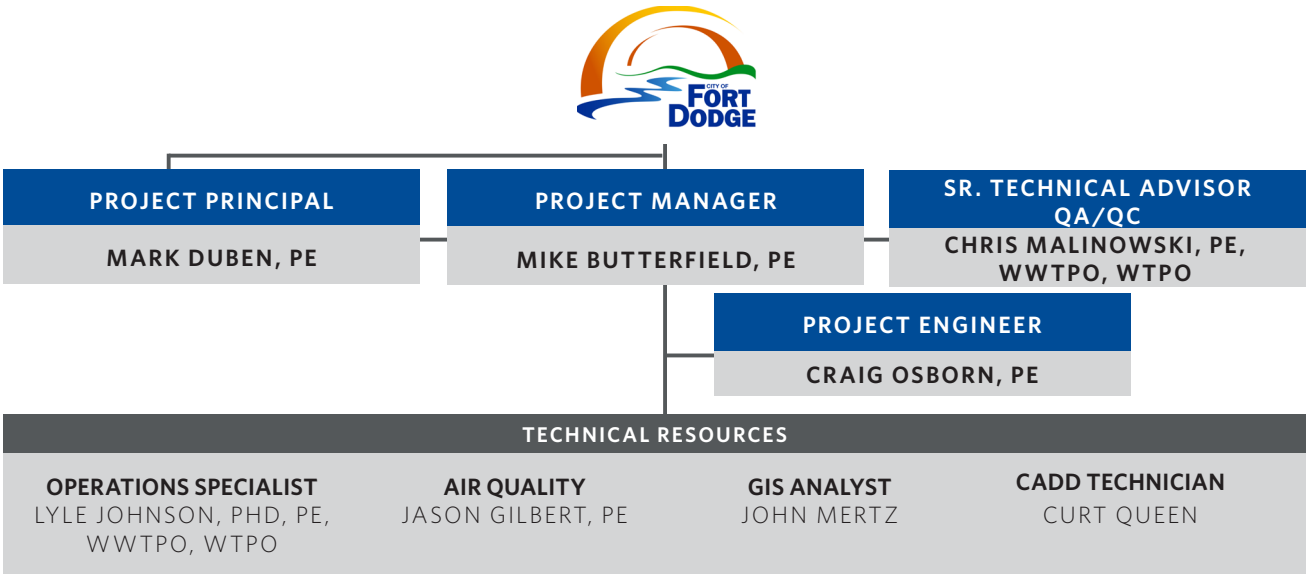
Project Team

Project Team

The HDR team will be led by Mike Butterfield, a project manager with significant experience at water and wastewater treatment facilities. Through his experience on other similar projects in Iowa, Mike has an understanding of facility compliance audits of RMP/PSM programs, specifically evaluation of process safety policies, procedures, documentation and practices. He is familiar with EPA's audit worksheet and AWWA's process safety checklist.

As shown in the organizational chart below, Mike is supported by a team of experts who have extensive knowledge with water treatment facilities and risk management planning and program development.

Brief biographies of each team member are shown below. Summary resumes are provided in the Resumes Section of this Statement of Qualifications to highlight our team's experience.



The right talent to develop the right solutions.

Mike Butterfield, PE - Mike has more than 12 years of experience as a project manager and design engineer involved with the design and construction of water and wastewater treatment and pumping systems as well as water distribution systems and wastewater collection systems. As project manager for the Cedar Rapids Water and Wastewater Audits and the Disinfection projects at the water plants, Mike gained experience with EPA Audits, RMP compliance and the design and construction of gas chlorine storage and feed facilities. He will leverage this experience to efficiently provide the documents needed to bring Fort Dodge into compliance.

Craig Osborn, PE - Craig has worked on dozens of RMP/PSM compliance projects. As a trained process hazard analysis leader, he has facilitated a number of process hazard analyses, served on audit teams, assisted facilities with the development of risk management/process safety programs, and overseen the preparation and submittal of numerous plans. His work have served to help clients pro-actively identify, evaluate, and minimize the chances of releases to the environment as a result of storage conditions, handling procedures, facility siting and equipment failure.

Mark Duben, PE - Mark has led the development, design, construction and management of a wide variety of water supply, treatment, and distribution projects. His vast experience covers pilot studies and testing, preliminary engineering studies and reports, design, construction administration, project management, operation and maintenance manuals, startup and training, rate studies and ordinance development. He is knowledgeable on water treatment regulations, risk management plans and the design and construction of gas chlorine feed systems for disinfection.

Chris Malinowski, PE, WWTPO, WTPO - Chris has 28 years of PSM/RMP program development experience and implementation for wastewater treatment works. As a certified wastewater treatment plant operator and water treatment plant operator, Mr. Malinowski has extensive experience operating municipal utilities and vast knowledge of the management, design, operation and maintenance, and project development of water and wastewater systems in both the municipal and industrial sectors.

Lyle Johnson, PhD, PE - Lyle has 32 years of experience in public works, water and wastewater as Director of Public Works, Water/Wastewater Manager, Wastewater Superintendent and Senior Project Manager. He has been directly involved in the design, management and operation of engineering, water, wastewater, transportation, storm water, electric, solid waste, and architectural projects. Lyle worked with Mike on the Cedar Rapids RMP projects where he assisted with the development of SOPs and trained the operations staff on the new vacuum regulator systems at both water treatment plants. Lyle is experienced in water and wastewater operations and process control, utility management, and capital improvement programs.

Jason Gilbert, PE - Jason has 18 years of experience in environmental engineering and consulting with emphasis in air quality management issues, regulatory compliance, environmental clean-up and project management. Jason's areas of expertise include permitting (SIP, Title V, NSR/PSD), dispersion modeling analysis, regulatory compliance, emission inventory development, agency negotiations/client advocacy, stack test planning/management and toxic release inventory reporting. For Risk Management Plan projects, Jason uses his extensive air dispersion modeling experience to develop accurate off-site consequence analysis information. Jason will bring this experience to the Fort Dodge effort to determine the impact radius of the worst case and alternative scenario for a potential chlorine discharge.

John Mertz - John has over 27 years of experience applying Geographic Information System (GIS) to a wide array of water, wastewater, hydrology, hydraulics, groundwater and surface water modeling, groundwater management, transportation design, water resource planning, flood studies, interior flood hydrology and water quality modeling projects.

Curt Queen - Curt's responsibilities have included preparation of civil, environmental, structural and architectural plans, technical plates, charts and graphs for presentation purposes, on-site data collection, technical calculations, and computer applications.

Similar Project Experience

We balance creative ideas with technical expertise to transform concepts into reality. Our talent and intellectual knowledge are changing the world for the better.

Similar Project Experience

HDR has substantial relevant experience assisting clients with developing Risk Management Plans for water and wastewater systems, as well as developing Process Safety Management Programs. We develop implementable plans that are tailored to each facility, and we train staff in proper procedures for documentation. We will draw upon this important experience to deliver this project to the City of Fort Dodge.

We understand all of the elements that will be required to achieve your strategic goals, including:

- Process Hazard Analysis
- Process Safety Information
- Off-Site Consequence Analysis
- Risk Management Plan
- Emergency Action Plan
- Standard Operating Procedures

Table 2 presents a sampling of HDR's similar experience. More detailed descriptions of a few of these key projects and the associated references are provided on the pages following the table. This experience will provide proven approaches and "lessons learned" which will be leveraged to your benefit throughout the delivery of your project.

HDR has extensive knowledge of and experience with EPA's Risk Management Plan (40 CFR 68) and OSHA's Process Safety Management (29 CFR 1910.119) and will use our experience to create documentation compliant with these regulations.

TABLE 2. HDR EXPERIENCE WITH RISK MANAGEMENT PLANNING AND PROCESS SAFETY MANAGEMENT WILL BE LEVERAGED FOR YOUR PROJECT

PROJECT	Process Hazard Analysis	Process Safety Information	Off-Site Consequence Analysis	Risk Management Plan	Emergency Action Plan	Standard Operating Procedures
J Avenue and Northwest WTP Chlorine System Improvements City of Cedar Rapids | Cedar Rapids, IA	◆	◆	◆	◆	◆	◆
Compliance Audits for Water and Wastewater Treatment Plants City of Cedar Rapids | Cedar Rapids, IA	◆	◆	◆	◆	◆	◆
Risk Management Plan Fremont Beef Company | Fremont, NE	◆	◆	◆	◆	◆	
Water and Wastewater Facilities Risk Management Program Development City of Lincoln | Lincoln, NE	◆	◆	◆	◆	◆	
Mitchell Water Plant RMP City of Mitchell | Mitchell, SD			◆	◆		
Wastewater Treatment Facility Risk Management Plan City of Sioux Falls | Sioux Falls, SD	◆		◆	◆		
Water Treatment Plant Expansion RMP City of Blair | Blair, NE			◆	◆		
Verde Water Treatment Facility Process Hazard Analysis City of Phoenix | Phoenix, AZ	◆	◆				◆
64th Street Water Reservoir Process Hazard Analysis City of Phoenix | Phoenix, AZ	◆	◆				◆
Process and Safety Management at Tyson Packing Plant IBP, Inc. | Dakota City, NE	◆	◆	◆	◆		◆
Process and Safety Management at Tyson Packing Plant IBP, Inc. | Amarillo, TX	◆	◆	◆	◆		◆
Industrial Wastewater RMP Program Development Premium Standard Farms | Milan, MO		◆				◆
Wastewater Treatment Plant RMP City of Columbus | Columbus, NE			◆	◆		
Asplund Wastewater Treatment Facility RMP Program Assistance City of Anchorage | Anchorage, AK	◆	◆	◆	◆		
Wastewater Treatment Plant RMP Program Assistance Oak Lodge Sanitary District | Portland, OR	◆	◆	◆	◆		
Schwans Frozen Foods Multiple Facilities RMP/PSM Audits Ammonia Refrigeration Schwan's Sales Enterprises | Marshall, MN	◆	◆	◆	◆	◆	◆

J Avenue and Northwest Water Treatment Plant Chlorine System Improvements

City of Cedar Rapids

Cedar Rapids, Iowa

PROJECT DETAILS

Client Reference:
Tariq Baloch
Water Plant Manager
761 J Ave NE
Cedar Rapids,
IA 52402
319.286.5983

Project Team:
- Mike Butterfield, PE
- Craig Osborn, PE
- Lyle Johnson, PE, PhD
- Jason Gilbert, PE

The City of Cedar Rapids Utility Department (City) owns and operates two water treatment plants, the J Avenue WTP and the Northwest WTP, that utilize chlorine gas in quantities that exceed EPA threshold levels and as such are subject to the requirements of EPA's RMP rule and OSHA's PSM. As part of an overall chlorine system improvements project at both plants, the City contracted with HDR to update the PSM/RMP documents to reflect the new chlorine feed system and equipment.

Relevance to Fort Dodge:
- **RMP E-submit**
- **Off-site Consequence Analysis**
- **Process Safety Information**
- **Process Hazard Analysis**
- **Operating Procedures**
- **Emergency Response Plan**
- **Management of Change**
- **New Vacuum Chlorination Equipment**

- **RMP E-submit:** HDR prepared the electronic forms for the City to submit to EPA.
- **Off-Site Consequence Analysis:** Using RMP*Comp and DEGADIS software, HDR modeled the potential impacts of an accidental release of chlorine gas to address both a "worst case" scenario and an alternate case release scenario.
- **Process Safety Information:** Information that enables plant personnel to identify and understand the hazards associated with the process was drafted to reflect new chlorine storage and feed systems.
- **Process Hazard Analysis (PHA):** HDR completed a systematic assessment of potential causes and consequences of hazards associated with the system. The PHA team consisted of operations, maintenance, safety, and engineering personnel in order to represent multiple perspectives. The PHA was done to proactively identify potential release scenarios and rank them according to priority.
- **Standard Operating Procedures:** The City and HDR worked collaboratively to develop and refine standard operating procedures for the new chlorine feed systems.
- **Emergency Response Plan:** HDR provided review comments on the chlorine alarm response plan, as well as the overall Emergency Response Plan for each plant.
- **Training:** Prior to manufacturer's equipment training, HDR conducted an overall system training for plant operations and maintenance staff that addressed how everything worked together, process hazards, and safety features.
- **Management of Change:** A management of change form was prepared early in the project's construction phase to the changes to the regulated process and to identify PSM/RMP documents to be updated.

At the completion of all of the document updates, HDR coordinated a workshop with Utilities Department staff and the Cedar Rapids Fire Department to review the project and discuss the emergency response plan with the Fire Department.

Compliance Audits for Water and Wastewater Treatment Plants

City of Cedar Rapids

Cedar Rapids, Iowa

Relevance to Fort Dodge:
- **RMP/PSM Program Review for Chlorine Systems**
- **EPA Audit Worksheet**
- **Reviewed and Updated OCA, PSI, PHA, SOP Documents**
- **Implementation Tracking Tool**

PROJECT DETAILS

Client Reference:
Steve Hershner
Utilities Director
1111 Shaver Road NE
Cedar Rapids,
IA 52402
319.286.5281

Project Team:
- Mike Butterfield, PE
- Craig Osborn, PE

HDR conducted facility compliance audits of the RMP/PSM programs at the City of Cedar Rapids J Avenue and Northwest Water Treatment Plants and the Bertram Road Water Pollution Control Facility. The three audits were conducted to provide the City with an expert independent evaluation of the process safety policies, procedures, documentation, and practices being used at the facilities and a determination of if they were being effectively implemented per the regulations.

Each audit consisted of a review of the facility management system, a facility walk through to view the regulated process, a review of program records, program documentation, and employee interviews to assess their awareness of the safety procedures, program rules and emergency assignments. **EPA's audit worksheet served as a guide for the audit as supplemented by the AWWA's process safety checklist.**

As a record of the event, HDR prepared audit reports to address observed deficiencies, present recommendations and an action item implementation tracking. **Implementation tracking is an important tool often forgotten by the regulated community but used by HDR to remind clients of tasks and commitments that need to be completed in order to document compliance with agency regulations.**

Risk Management Plan

Fremont Beef Company

Fremont, Nebraska

PROJECT DETAILS

Client Reference:
George Nechodomu
Plant Engineer
960 Schneider Street
Fremont, NE 68025
402.727.7200

Project Team:
- Craig Osborn, PE
- Jason Gilbert, PE
- John Mertz

Fremont Beef uses, stores, and handles anhydrous ammonia in excess of 10,000 pounds in its refrigeration system which defines it as a regulated process subject to EPA's Risk Management Rule. In February of 2014, Fremont Beef was inspected by EPA and required to update their Risk Management Program (RMP) including preparation of the Process Safety Information (PSI) and updating its Emergency Action Plan (EAP).

The RMP completion timeline was accelerated by the requirements by the EPA. Knowing that one of the most frequent violations cited by EPA is deficiency resolutions, the HDR team worked closely with Fremont Beef Company staff to develop Implementation Tracking. This allowed Fremont Beef to log and track status on all of the identified deficiencies, recommended actions, responsible parties, and completion dates.

Process Safety Information was prepared to fulfill the requirements of 40 CFR 68.65 (a and b) and included information on the hazards of the regulated substances, a summary of the processes and equipment used and process and instrumentation diagrams (P&IDs).

An EAP was been prepared using the guidance provided in Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1910.38 for the purpose of organizing and facilitating employer and employee actions during workplace emergencies such as, but not limited to, any of the following: fire, tornado, earthquake, bomb/terrorist threat, or hazardous chemical spill. In the event of a major disaster, this EAP describes the initial responsibilities and actions to be taken to protect all employees.

Relevance to Fort Dodge:
- **Response to EPA audit**
- **Development of Risk Management Plan**
- **Process Safety Information**
- **Off Site Consequence Analysis**
- **Audit Deficiency Tracking**

Modeling for the worst case and alternative case scenarios was completed using RMP*Comp, an internet browser-based program developed by and suggested by the EPA. This program provides the estimated distance to the toxic endpoint of an anhydrous ammonia release for various release scenarios.

The first release scenario represents the worst case, to characterize an entire release of the largest single container at the facility in 10 minutes. This release scenario is required by the EPA.

The second release scenario represents an alternative or more likely release in which the facility is allowed to select a release quantity and duration that would be more likely to occur based on the system operations.

Water and Wastewater Facilities Risk Management Program Development

City of Lincoln

Lincoln, NE

Relevance to Fort Dodge:

- **Process Hazard Analysis to Identify Potential Release Scenarios**
- **Off-site Consequence Analysis**
- **Emergency Response Plan**
- **RMP E-Submit**

PROJECT DETAILS

Client Reference:
Steve Owen
Superintendent of Water
2021 N 27th Street
Lincoln, NE 68503
402.441.5925

Project Team:

- Craig Osborn, PE
- John Mertz

The City of Lincoln owns and operates the Ashland Water Treatment Facility that utilizes chlorine and anhydrous ammonia in quantities that exceed EPS threshold levels and as such are subject to the requirements of the Risk Management Program rule. As part of that program the Ashland facility contracted with HDR to revalidate their Process Hazard Analysis (PHA).

HDR s selected a multi-disciplinary team of people experienced in water/wastewater operations, process engineering design, regulatory issues, and emergency response coordination. A process hazard analysis was conducted using PHA Pro software. The PHA was done to proactively identify potential release scenarios and rank them according to priority. This allowed the City to pick up from the PHA the issues that could present a risk to the workers and the environment during the storage, use and handling of chlorine and ammonia at the facility.

- **Off-Site Consequence Analysis:** Using RMP*Comp software, HDR modeled the potential impacts of an accidental release of chlorine gas to address both a "worst case" scenario and an alternate case release scenario.
- **Emergency Response Plan:** HDR revised the existing EAP to include notification, evacuation and response to a chlorine release.
- **RMP E-submit:** HDR prepared the electronic forms for the City to submit to EPA.

Mitchell Water Plant RMP

City of Mitchell

Mitchell, South Dakota

Relevance to Fort Dodge:
- **Risk Management Plan**
- **Off-Site Consequence Analysis**
- **RMP E-Submit**

PROJECT DETAILS

Client Reference:
Richard Pollreisz
Water Superintendent
2800 North Main
Mitchell, SD 57301
402.995.8449

Project Team:
- Craig Osborn, PE
- Jason Gilbert, PE

The City of Mitchell, South Dakota's Water Treatment Plant uses chlorine for the disinfection of potable water. The City asked HDR to assist them with registering their Water Treatment Plant under EPA's Risk Management Program requirements (40 CFR 68). Per the rule, the City updated both the Risk Management Plan (RMP) and Off-Site Consequence Analysis (OCA) at the water treatment plant.

HDR prepared the RMP E-submit documents for the facility in both 2009 and 2014. This effort involved reviewing and assessing program information (P&IDs, Standard Operating Procedures, and Emergency Action Plans, etc.) provided by the City required for the RMP E-Submit. HDR verified that the information was correct and represented existing facility conditions.

As part of the OCA, HDR categorized the topography, delineated adjacent land use, determined the most recent census population distributions, and determined zoning classifications for the site and surrounding area. A determination of the worst-case release impact distance for the chlorination process based on the chemical inventories and collaboration with City was made.

Proposed Schedule

Proposed Schedule

HDR has the resources and capacity to deliver this project and meet the City of Fort Dodge's schedule goals for this project. The members of this HDR Team were carefully selected not only for their expertise, but also for their availability to effectively work on this project. Based on current and projected workloads, the personnel listed on the project organizational chart are available to begin work upon the Notice-to-Proceed and devote the time necessary to complete this project. HDR has tailored the project team to provide the high level of expertise, availability and local involvement needed to successfully complete this project. Our proposed schedule is shown graphically below and includes the following key points:

- Complete field work for Process Safety Information following kickoff meeting.
- Early start on Management of Change Form to document planned changes to the vacuum feed system before or immediately after installation.
- Conduct Process Hazard Analysis workshop in early April 2015.
- Complete EAP after conducting off-site consequence analysis and PHA workshop.
- Submit all draft documents for review in late April and final documents in late May following a review meeting.
- File Risk Management Plan with EPA in June 2015 after final documents are complete.
- Achieve full compliance with EPA in July 2015.

Proposed Project Schedule	Dec	Jan	Feb	Mar	April	May	June	July
Task 100 - Project Management								
Task 200 - Process Safety Information								
Task 300 - Management of Change & Emergency Action Plan								
Task 400 - Standard Operating Procedures								
Task 500 - Off-Site Consequence Analysis & Risk Management Plan								
Task 600 - Process Hazard Analysis								

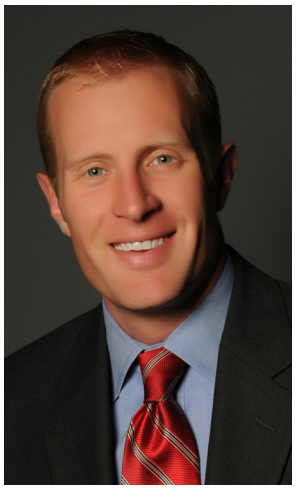
★ **Meeting/Workshop**

Kickoff Meeting - Early January
PHA Workshop - Early April
Final Review Meeting - Early May

● **Deliverables**

Draft RMP Deliverable - Late April
Final RMP Deliverable - Late May

Resumes



Mike Butterfield, PE

Project Manager

Mike will listen, understand, collaborate, and work passionately in leading the team in the development of a Risk Management Plan that will bring the City into compliance with applicable regulations. Mike's experience with EPA Audits, RMP compliance and the design and construction of gas chlorine storage and feed facilities will be leveraged on this project.

EDUCATION
Bachelor of Science, Civil Engineering, University of Nebraska-Lincoln, 2002

REGISTRATIONS
Professional Engineer, Iowa

YEARS OF SERVICE AT HDR
9

YEARS OF INDUSTRY EXPERIENCE
12

RELEVANT EXPERIENCE

City of Cedar Rapids, J Ave. WTP Chlorine System Improvements, Cedar Rapids, IA. ***Project Manager.***
Mike assessed and designed improvements to the City's existing pressurized gas chlorine feed system necessary to improve safety conditions at the J Avenue Water Treatment Plant.

City of Cedar Rapids, Northwest WTP Chlorine System Improvements, Cedar Rapids, IA. ***Project Manager.***
Mike assessed and designed improvements to the City's existing pressurized gas chlorine feed system necessary to improve safety conditions at the Northwest Water Treatment Plant.

City of Cedar Rapids, Utilities Compliance Audit, Cedar Rapids, IA. ***Project Engineer.***
Mike completed compliance audits and a report summarizing findings and recommendations for chlorine processes of the Cedar Rapids Water Pollution Control Facility, Cedar Rapids J Ave Water Treatment Plant, and Cedar Rapids NW Water Treatment.

City of Cedar Rapids, J Avenue WTP CO2 Improvements, Cedar Rapids, IA. ***Project Manager.***
Mike provided engineering design and assisted with project management for design of improvements to the carbon dioxide storage system at the J Avenue Water Treatment Plant. The project consisted of a new storage tank, chemical feed pipeline and automated controls for the dual storage tank system.

City of Cedar Rapids, WPCF Chlorine Disinfection, Cedar Rapids, IA. ***Project Manager.***
Mike provided engineering services to evaluate the existing chlorine system, examine possible alternatives, develop recommended approach and prepare detailed design documents for completion of required improvements for expansion of the system to increase feed capacity, improve chlorine withdrawal and feed consistency between banks of cylinders and between regulatory requirements with respect to disinfection, meet current and anticipated NPDES regulatory requirements.

Craig Osborn, PE

Project Engineer

As a trained process hazard analysis leader, Craig has facilitated a number of process hazard analyses, served on audit teams, assisted facilities with the development of risk management/process safety programs, and overseen the preparation and submittal of numerous plans to the EPA.

EDUCATION
Bachelor of Science, Civil Engineering, University of Nebraska-Lincoln, 1985

Bachelor of Science, Conservation/Renewable Natural Resources, University of Nebraska-Lincoln, 1975

REGISTRATIONS
Professional Engineer, Civil - Nebraska

YEARS OF SERVICE AT HDR
29

YEARS OF INDUSTRY EXPERIENCE
39

RELEVANT EXPERIENCE

City of Cedar Rapids, Utilities Compliance Audit, Cedar Rapids, IA. ***Project Engineer.***
Craig completed compliance audits and a report summarizing findings and recommendations for chlorine processes of the Cedar Rapids Water Pollution Control Facility, Cedar Rapids J Ave Water Treatment Plant, and Cedar Rapids NW Water Treatment.

City of Cedar Rapids, J Ave. WTP Chlorine System Improvements, Cedar Rapids, IA. ***Project Engineer.***
Craig updated the PSM/RMP documents to reflect the new chlorine feed system and equipment.

City of Cedar Rapids, Northwest WTP Chlorine System Improvements, Cedar Rapids, IA. ***Project Engineer.***
Craig updated the PSM/RMP documents to reflect the new chlorine feed system and equipment.

City of Lincoln, Water and Wastewater Facilities Risk Management Program Development, Lincoln, NE. ***Project Engineer.***
Craig assisted the City with implementation of the RMP and prepared the RMP Manuals for the chlorine injection systems at two wastewater treatment facilities, which addressed each of the major program elements.

Fremont Beef Company, Risk Management Plan and Ammonia Refrigeration Plant PSM Program Development, Fremont, NE. ***Project Manager.***
Craig managed the development and implementation of the Risk Management/Process Safety Programs for the ammonia refrigeration system used at this meat processing facility.

City of Mitchell, Mitchell Water Plant RMP, Mitchell, SD. ***Project Engineer.***
Craig updated and resubmitted the city's two Water Treatment Plants RMPs as required by the EPA. Reviewed and revised the off-site consequence analysis for the site.

City of Anchorage, Asplund Wastewater RMP Program Development, Anchorage, AL. ***Project Manager.***
Craig facilitated the Process Hazard Analysis of the chlorine injection system to assess the likelihood and severity of potential accidental releases. Process safety was evaluated based on the modeling of off-site consequences due to the potential release of a gas.

City of Phoenix, 64th Street Water Reservoir and Verde Water Treatment Facility Process Hazard Analysis, Phoenix, AZ. ***Project Engineer.***
Craig facilitated the Process Hazard Analysis, which assessed the likelihood and severity of potential accidental releases of chlorine from the facilities.

Mark Duben, PE

Project Principal

Mark specializes in water supply, treatment, and distribution. His vast experience includes water treatment regulations, risk management plans and the design and construction of several gas chlorine feed systems for disinfection. As Project Principal, Mark's role is to ensure that all necessary company resources are provided for efficient and cost-effective project completion.

EDUCATION
Master of Science, Sanitary Engineering, Iowa State University, 1987

Bachelor of Science, Civil Engineering, Iowa State University, 1981

REGISTRATIONS
Professional Engineer, Iowa

Professional Engineer, Nebraska

YEARS OF SERVICE AT HDR
33

YEARS OF INDUSTRY EXPERIENCE
1

RELEVANT EXPERIENCE

Risk Management Plan (RMP) and Process Safety Management (PSM) for Gas Chlorination System. ***Project Manager.***
These projects involved preparation of RMP with submittal to U.S. EPA, preparation of PSM documentation, and review with operations and maintenance personnel for the gas chlorination system of the following water utilities:

- City of Iowa City, IA
- Creston Water Works of Creston, IA
- Denison Municipal Utilities of Denison, IA
- Osceola Water Works of Creston, IA
- Winterset Municipal Utilities of Winterset, IA

City of Lincoln, Water Facilities Master Plan, Lincoln, NE. ***Senior Engineer.***
Provided Facilities Master Planning services for the City's water supply through the year 2040. The Plan includes a review of the City's water capacity requirements, supply availability, treatment capacity and future regulatory requirements, distribution system analysis, development of a water main replacement program, asset management program, and development of a final report.

City of Cedar Rapids, Water Treatment Disinfection Study & Improvements, Cedar Rapids, IA. ***Project Manager.***
The study involved a detailed evaluation of UV disinfection and other disinfection alternatives for the City of Cedar Rapids' 42 MGD and 20 MGD water treatment facilities. The final project included new UV disinfection buildings, 2.0 million gallon chloramine contact basin, 1.0 million gallon ground storage reservoir, 56 MGD high service and low-lift pumping station, stormwater detention/pumping, 2,000 KW emergency generator, medium voltage electrical distribution system, and extensive site work.

City of Iowa City, New Water Treatment Plant and Related Facilities, Iowa City, IA. ***Project Manager.***
This relationship consisted of numerous projects over nearly a decade. Improvements included a new 16.7 MGD lime softening treatment plant, sludge lagoons, river intake, quarry intake, four alluvial horizontal collector wells, four Silurian wells, one Jordan well, raw and finished water transmission mains, and various renovations in the existing water supply system.

Chris Malinowski, PE, WWTPO, WTPO

Senior Technical Advisor and QA/QC

Chris has over 28 years of PSM/RMP program development experience and implementation for wastewater treatment works. As a certified water and wastewater treatment plant operator, Chris has extensive experience operating municipal utilities and vast knowledge of the management, design, operation and maintenance, and project development of water and wastewater systems.

EDUCATION
Bachelor of Science, Civil Engineering, Texas A&M University, College Station, 1986

REGISTRATIONS
Professional Engineer - Civil, Texas

Professional Engineer - Civil, Oklahoma

Water Treatment Plant Operator, Texas

Wastewater Treatment Plant Operator, Texas

ISI Envision Sustainability Professional

YEARS OF SERVICE AT HDR
2

YEARS OF INDUSTRY EXPERIENCE
28

RELEVANT EXPERIENCE

SouthWest Water Company, TX. ***Vice President of Operations.***
Prior to joining HDR, Chris was Vice President of Operations at SouthWest Water Company. In that role, he was responsible for all aspects of over 300 different water and wastewater facilities across the United States. This included regulatory compliance, safety, financial performance, and personnel management.

Oyster Creek WTP, Risk Management Plan Audit, Angleton, TX. ***Project Manager.***
Chris performed an audit of the City's Risk Management Plan at their wastewater treatment plant, which had 4,000 pounds of chlorine on site and required a Level 2 RMP. Utilized actual EPA inspection worksheets to perform audit.

Chelford City Municipal Utility District, Risk Management Plan Update, Houston, TX. ***Project Manager.***
Chris led a team of experts to perform the 5 year update of the District's Risk Management Plan. Updated all components and submitted the update on EPA's E-submit. Because this site was operated by a private operator, we also updated the OSHA Process Safety Management plan.

Lake Forest Regional WWTP, Risk Management Plan Update, Houston, TX. ***Project Manager.***
Chris led a team of experts to perform the 5 year update of the District's Risk Management Plan. Updated all components and submitted the update on EPA's E-submit. Because this site was operated by a private operator, we also updated the OSHA Process Safety Management plan.

Iowa Premium Beef, Staff Augmentation, Tama, IA. ***Project Manager.***
HDR is providing licensed wastewater treatment plant operators for one year to a new wastewater treatment plant that serves a new beef processing facility. Operators are responsible for all operational aspects of the facility, including process control, reporting, sampling and monitoring, and preventative maintenance.

EDF Renewable Energy, Heartland Biogas, LLC Anaerobic Digester Facility EPC, La Salle, CO. ***Project Manager.***
Operations specialist during design, construction, commissioning, startup of the $33.7 million Heartland Biogas anaerobic digester facility. The Heartland digester facility is capable of exporting up to 1,500,000 million British Thermal Units (MMBTU) annually, making it the largest anaerobic digester facility in North America.

Lyle Johnson, PE, PHD, WWTPO, WTPO

Operations Specialist

Lyle has over 32 years of experience in public works, water and wastewater as Director of Public Works, Water/Wastewater Manager, Wastewater Superintendent and Senior Project Manager. Lyle recently assisted with the Cedar Rapids RMP projects, where he developed SOPs and trained operations staff on new vacuum regulator systems.

EDUCATION

Doctor of Philosophy, Sanitary Engineering, Iowa State University, 1981

Master of Science, Civil & Environmental Engineering, University of Iowa, 1975

Bachelor of Science, Civil Engineering, University of Iowa, 1975

REGISTRATIONS

Professional Engineer, South Dakota

Water Treatment Plant Operator, Iowa

Wastewater Treatment Plant Operator, Iowa

Water Treatment Plant Operator, South Dakota

Wastewater Treatment Plant Operator, South Dakota

YEARS OF SERVICE AT HDR

4

YEARS OF INDUSTRY EXPERIENCE

32

RELEVANT EXPERIENCE

City of Cedar Rapids, J Ave. WTP Chlorine System Improvements, Cedar Rapids, IA. ***Operations Specialist.***
Lyle developed standard operating procedures and trained operations staff and provided QA/QC reviews of the Chlorination System Operations Manual.

Council Bluffs Water Works, Wellfield Construction, Council Bluffs, IA. ***Operations Specialist.***
Performed operator training and prepared electronic O&M manual for Council Bluffs Water Works for their new 10 MGD Council Point Water Treatment Plant.

Hastings Utilities, WPCF Improvements, Hastings, NE. ***Operations Specialist.***
Preparation of O&M Manual and Operator Training. Provided engineering services related to the proposed Water Pollution Control Facility Improvements.

Non-HDR Experience:
City of Sioux Falls, Chemical Feed Addition for Water Purification Plant, Sioux Falls, SD. ***Project Manager.***
Project Manager for construction of the chemical feed addition at the water plant that included adding storage and feed for aqueous ammonia, ferric chloride, and PAC.

City of Sioux Falls, Operating Experience, Sioux Falls, SD. ***Water/Wastewater Manager.***
As Wastewater Superintendent, Dr. Johnson was responsible for the operation of a 13.4 MGD advanced wastewater treatment facility including primary and secondary chlorination treatment with gaseous chlorine and dechlorination. Solids processing included gravity thickening, anaerobic digestion with gas collection and utilization, belt filter presses for sludge dewatering and later agricultural application of biosolids.

In addition to managing the wastewater operation, Dr. Johnson also responsible for a 48 MGD water treatment plant using blended groundwater and surface water supplies. Plant processes included lime softening, recarbonation, gravity filters, chlorine and ammonia addition for secondary disinfection. Additionally, Dr. Johnson oversaw the development of the risk management plans for both the water and wastewater treatment plants.

Jason Gilbert, PE

Air Quality Specialist

For Risk Management Plan projects, Jason uses his extensive air dispersion modeling experience to develop accurate off-site consequence analysis information. Jason will bring this experience to the Fort Dodge effort to determine the impact radius of the worst case and alternative scenario for a potential chlorine discharge.

EDUCATION
Bachelor of Science, Chemical Engineering, University of Nebraska-Lincoln, 1999

REGISTRATIONS
Professional Engineer - Civil, Nebraska

YEARS OF SERVICE AT HDR
8

YEARS OF INDUSTRY EXPERIENCE
18

RELEVANT EXPERIENCE

City of Cedar Rapids, J Ave. WTP Chlorine System Improvements, Cedar Rapids, IA. ***Environmental Engineer.***
Jason updated and resubmitted the Water Treatment Plants Risk Management Plan (RMP) as required by the EPA. Reviewed and revised the off-site consequence analysis for the site.

City of Cedar Rapids, Northwest WTP Chlorine System Improvements, Cedar Rapids, IA. ***Environmental Engineer.***
Jason updated and resubmitted the Water Treatment Plants Risk Management Plan (RMP) as required by the EPA. Reviewed and revised the off-site consequence analysis for the site.

Fremont Beef Company, Ammonia Refrigeration Plant PSM Program Development, Fremont, NE. ***Environmental Engineer.***
Jason assisted with the development and implementation of the Risk Management/Process Safety Programs for the ammonia refrigeration system used at this meat processing facility.

City of Mitchell, Mitchell Water Plant RMP, Mitchell, SD. ***Environmental Engineer.***
Jason updated and resubmitted the city's two Water Treatment Plants Risk Management Plans (RMP) as required by the EPA. Reviewed and revised the off-site consequence analysis for the site.

Confidential Corn Derivatives Animal Feed Product Client Corporation, Blair, NE. ***Environmental Engineer.***
As part of its ongoing services, HDR provided evaluation of off-site consequence analysis for the expansion of on-site RMP chemical storage.

City of Omaha, Risk Management Plans: Wastewater Treatment Plants, Omaha, NE. ***Project Manager/Project Engineer.***
Project Manager and Project Engineer for revisions to the risk management plans (RMPs) for two (2) wastewater treatment facilities. Activities included revisions to the risk management plan, hazard assessment and off-site consequence analysis.

City of Nebraska City, Wastewater Treatment Plant RMP Development, Nebraska City, NE. ***Project Engineer.***
Project Engineer for revisions to the risk management plans (RMPs) for the wastewater treatment facility. Activities included revisions to the risk management plan, hazard assessment and off-site consequence analysis.

300 East Locust Street, Suite 210
Des Moines, IA 50309
515.280.4940

hdrinc.com

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